AETC AIDS Education & Training Center Program
Southeast Regional Conference 2023

Two Case Studies in PEP and PrEP

Christopher Hurt, MD, FIDSA
North Carolina HIV Training & Education Center at UNC

Christopher B. Hurt, MD, FIDSA
Associate Professor of Medicine

Director, North Carolina HIV Training & Education Center
Associate Chief for Clinical Operations, UNC Division of Infectious Diseases
Site PI, Ryan White HIV/AIDS Program Part D, UNC ID Clinic

Institute for Global Health & Infectious Diseases
University of North Carolina at Chapel Hill
School of Medicine

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Disclosures

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- Outline the management of indeterminate or reactive HIV screening tests for patients currently taking oral PrEP
- Explain the impact of subtherapeutic antiretroviral exposure on the expected time-to-positivity of HIV screening tests
- Formulate their own approach to counseling a young adult at risk for HIV about the PrEP options available to them

Case 1: “Mike” (November 2018)

- 43 years old, without any significant past medical history
- Married but in a negotiated, open relationship with his husband

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- 9/2/2018 – saw "friend w/benefits" and had RAI
  - Partner attempted to remove condom partway but "finished outside" (witnessed by Mike)
- 9/30/2018 – FwB told him one of his partners had gonorrhea. FwB denied any symptoms but encouraged Mike to get checked.

Case 1: "Mike" (November 2018) – cont'd

- 10/3/2018 – Saw PCP, received ceftriaxone + azithromycin

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- 10/6/2018 – Took first dose of FTC/TDF for PrEP

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- 10/3/2018 – Saw PCP, received ceftriaxone + azithromycin
  - Discussed incident w/FwB, pros/cons of starting PrEP
  - Lab-based, automated HIV Ag/Ab assay was **non-reactive**
- 10/6/2018 – Took first dose of FTC/TDF for PrEP
- 10/8/2018 – saw same FwB, again had RAI **with** condom*

* had condomless oral sex (giving and receiving)

Case 1: "Mike" (November 2018) – cont'd (2)

- 11/6/2018 – 30d visit with PCP to assess how PrEP was going
  - Feeling well, no missed doses of FTC/TDF

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  - Feeling well, no missed doses of FTC/TDF
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  - Quantity not sufficient to run supplemental Ab assay

- **PCP contacted Dr. Hurt on 11/8/2018**

Polling Question #1: "Mike"

In addition to repeating the HIV Ag/Ab assay and scheduling a formal evaluation ASAP, what guidance would you give Mike's PCP?

A. Continue FTC/TDF
B. Continue FTC/TDF and order HIV RNA
C. Continue FTC/TDF and add dolutegravir
D. Continue FTC/TDF, add dolutegravir, and order HIV RNA
E. Stop FTC/TDF pending formal consultation

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- 11/9/2018 – HIV RNA not detected
- 11/14/2018 – saw Dr. Hurt at UNC ID Clinic
  - Lab-based, automated HIV Ag/Ab assay **non-reactive**
    - Supplemental HIV-1/2 antibody assay not performed
  - Repeat HIV RNA not detected

Case 1: "Mike" (November 2018) – cont'd (2)

- 11/9/2018 – HIV RNA not detected
- 11/14/2018 – saw Dr. Hurt at UNC ID Clinic
  - Lab-based, automated HIV Ag/Ab assay **non-reactive**
    - Supplemental HIV-1/2 antibody assay not performed
  - Repeat HIV RNA not detected

- FTC/TDF continued until Mike filled a new prescription for a 28-day course of BIC/FTC/TAF (as PEP)

Why not FTC/TDF + (RAL or DTG)?

Occupational PEP guidance updated in **2013**

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY SEPTEMBER 2013, VOL. 34, NO. 9

US PUBLIC HEALTH SERVICE GUIDELINE

Updated US Public Health Service Guidelines for the Management of Occupational Exposures to Human Immunodeficiency Virus and Recommendations for Postexposure Prophylaxis

David T. Kuhar, MD;[1] David K. Henderson, MD;[2] Kimberly A. Struble, PharmD;[3] Walid Heneine, PhD;[4] Vasavi Thomas, RPh, MPH;[4] Laura W. Cheever, MD, ScM;[5] Ahmed Gomaa, MD, ScD, MSPH;[6] Adelisa L. Panlilio, MD;[1] for the US Public Health Service Working Group

This report updates US Public Health Service recommendations for the management of healthcare personnel (HCP) who experience occupational exposure to blood and/or other body fluids that might contain human immunodeficiency virus (HIV). Although the principles of exposure management remain unchanged, recommended HIV postexposure prophylaxis (PEP) regimens and the duration of HIV follow-up testing for exposed personnel have been updated. This report emphasizes the importance of primary prevention strategies, the prompt reporting and management of occupational exposures, adherence to recommended HIV PEP regimens when indicated for an exposure, expert consultation in management of exposures, follow-up of exposed HCP to improve adherence to PEP, and careful monitoring for adverse events related to treatment, as well as for virologic, immunologic, and serologic signs of infection. To ensure timely postexposure management and administration of HIV PEP, clinicians should consider occupational exposures as urgent medical concerns, and institutions should take steps to ensure that staff are aware of both the importance of and the institutional mechanisms available for reporting and seeking care for such exposures. The following is a summary of recommendations: (1) PEP is recommended when occupational exposures to HIV occur; (2) the HIV status of the exposure source patient should be determined, if possible, to guide need for HIV PEP; (3) PEP medication regimens should be started as soon as possible after occupational exposure to HIV, and they should be continued for a 4-week duration; (4) new recommendation—PEP medication regimens should contain 3 (or more) antiretroviral drugs (listed in Appendix A) for all occupational exposures to HIV; (5) expert consultation is recommended for any occupational exposures to HIV and at a minimum for situations described in Box 1; (6) close follow-up for exposed personnel (Box 2) should be provided that includes counseling, baseline and follow-up HIV testing, and monitoring for drug toxicity; follow-up appointments should begin within 72 hours of an HIV exposure; and (7) new recommendation—if a newer fourth-generation combination HIV p24 antigen–HIV antibody test is utilized for follow-up HIV testing of exposed HCP, HIV testing may be concluded 4 months after exposure (Box 2); if a newer testing platform is not available, follow-up HIV testing is typically concluded 6 months after an HIV exposure.

Infect Control Hosp Epidemiol 2013;34(9):875-892

Preventing exposures to blood and body fluids (ie, primary prevention) is the most important strategy for preventing occupationally acquired human immunodeficiency virus (HIV) infection. Both individual healthcare providers and the institutions that employ them should work to ensure adherence to the principles of Standard Precautions,[1] including ensuring access to and consistent use of appropriate work practices, work practice controls, and personal protective equipment. For instances in which an occupational exposure has occurred, appropriate postexposure management is an important element of workplace safety. This document provides updated recommendations concerning the management of occupational exposures to HIV.

The use of antiretrovirals as postexposure prophylaxis (PEP) for occupational exposures to HIV was first considered in guidelines issued by the Centers for Disease Control and Prevention (CDC) in 1990.[2] In 1996, the first US Public Health Service (PHS) recommendations advocating the use of PEP after occupational exposure to HIV were published; these recommendations have been updated 3 times.[3-6] Since

Affiliations: 1. Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia; 2. Office of the Deputy Director for Clinical Care, Clinical Center, National Institutes of Health, Bethesda, Maryland; 3. Division of Antiviral Products, Center for Drug Evaluation and Research, Food and Drug Administration, Silver Spring, Maryland; 4. Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia; 5. HIV/AIDS Bureau, Health Resources and Services Administration, Rockville, Maryland; 6. Division of Surveillance, Hazard Evaluation, and Health Studies, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Cincinnati, Ohio.

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0899-823X/2013/3409-0001. DOI: 10.1086/672271

Preferred regimen

emtricitabine/
tenofovir disoproxil fumarate
200/300 mg PO QD

AND

raltegravir
400 mg PO BID

oPEP – Kuhar DT, et al. Infect Control Hosp Epidemiol. 2013;34(9):875-92

FTC/TDF pill photo by Christopher Hurt; raltegravir pill photo from https://www.aidsmap.com/about-hiv/arv-factsheet/raltegravir

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Alternative regimen

cobicistat/
elvitegravir/
emtricitabine/
tenofovir disoproxil fumarate
50/150/200/300 mg PO QD

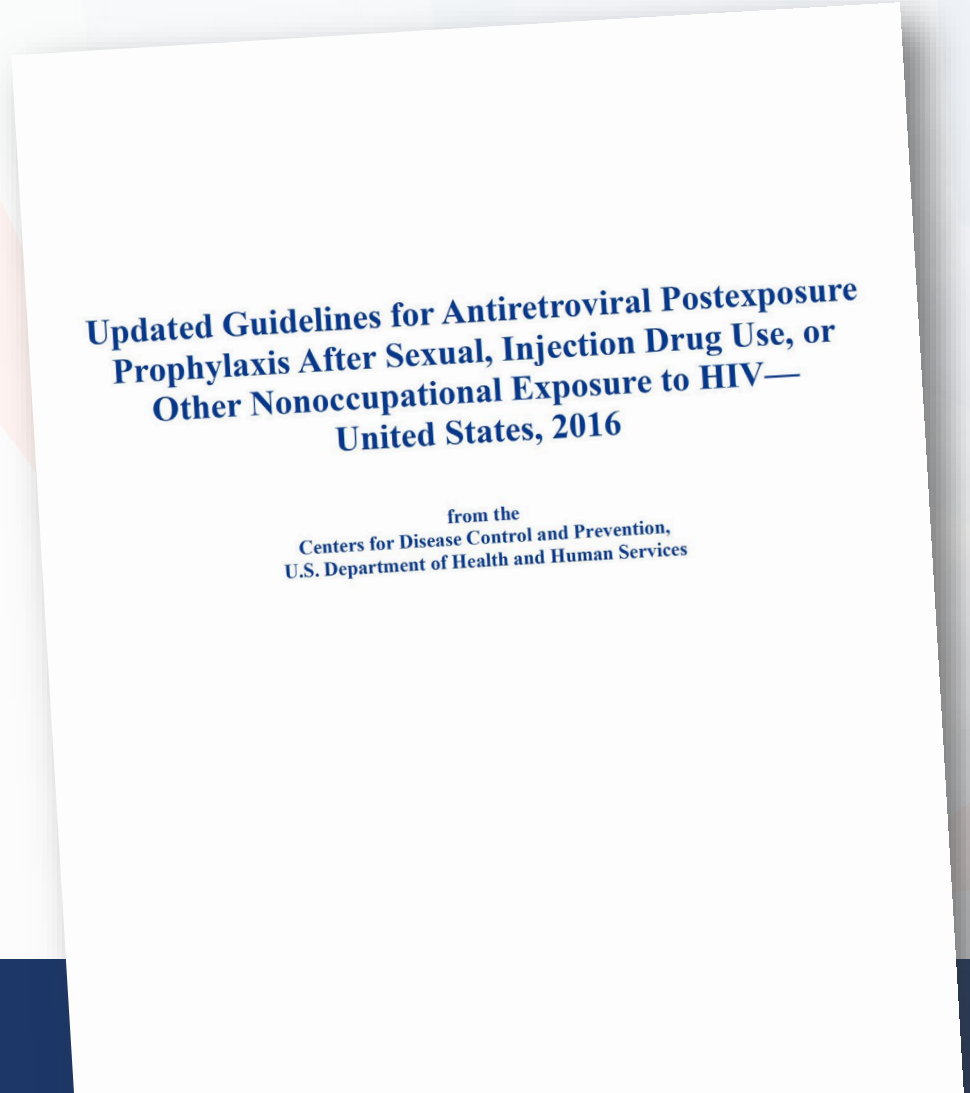
Set precedent for use of a single-tablet regimen as PEP, in selected patients

oPEP – Kuhar DT, et al. Infect Control Hosp Epidemiol. 2013;34(9):875-92

FTC/TDF pill photo by Christopher Hurt; raltegravir pill photo from https://www.aidsmap.com/about-hiv/arv-factsheet/raltegravir

Why not FTC/TDF + (RAL or DTG)?

Non-occupational PEP guidance updated in **2016**

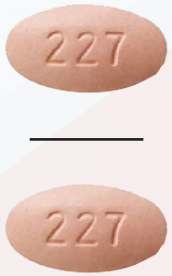

Updated Guidelines for Antiretroviral Postexposure Prophylaxis After Sexual, Injection Drug Use, or Other Nonoccupational Exposure to HIV—United States, 2016

from the
Centers for Disease Control and Prevention,
U.S. Department of Health and Human Services

Preferred regimen

emtricitabine/
tenofovir disoproxil fumarate
200/300 mg PO QD

WITH EITHER



raltegravir
400 mg PO BID

OR

dolutegravir
50 mg PO QD

nPEP – https://stacks.cdc.gov/view/cdc/38856

FTC/TDF pill photo by Christopher Hurt; raltegravir pill photo from https://www.aidsmap.com/about-hiv/arv-factsheet/raltegravir

Why not FTC/TDF + (RAL or DTG)?

Subsequent to the two updated PEP guidelines (2013 & 2016)…

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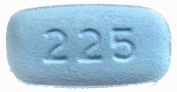
2016



emtricitabine / tenofovir alafenamide fumarate
200/25 mg PO QD

functionally interchangeable
with emtricitabine / tenofovir DF

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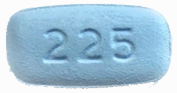
2016



emtricitabine / tenofovir alafenamide fumarate
200/25 mg PO QD

functionally interchangeable with emtricitabine / tenofovir DF

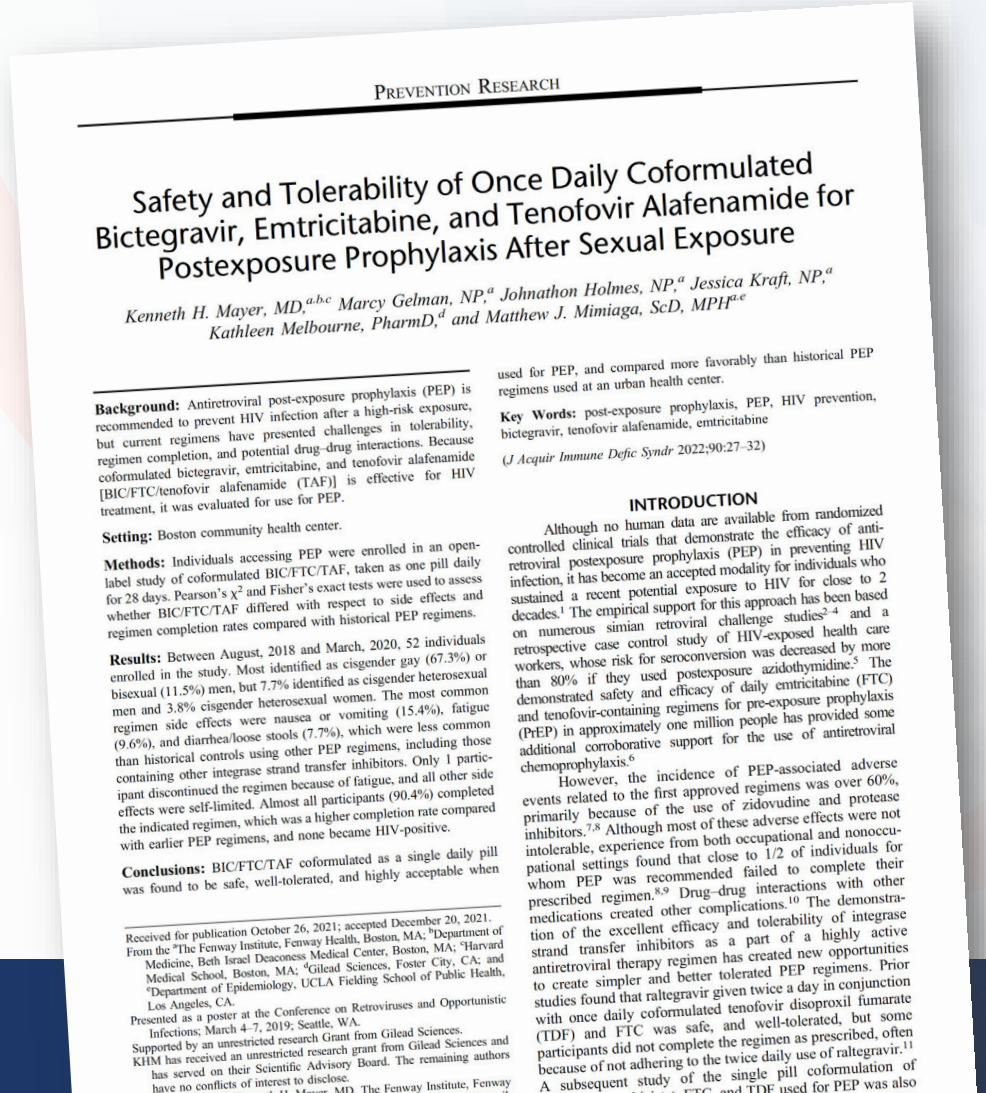
2018

bictegravir / emtricitabine/ tenofovir alafenamide fumarate
50/200/25 mg PO QD

functionally interchangeable with dolutegravir plus emtricitabine / tenofovir DF

BIC/FTC/TAF is reasonable for PEP

UNC's providers aren't alone in using this



PREVENTION RESEARCH

Safety and Tolerability of Once Daily Coformulated Bictegravir, Emtricitabine, and Tenofovir Alafenamide for Postexposure Prophylaxis After Sexual Exposure

Kenneth H. Mayer, MD,[a,b,c] Marcy Gelman, NP,[a] Johnathon Holmes, NP,[a] Jessica Kraft, NP,[a] Kathleen Melbourne, PharmD,[d] and Matthew J. Mimiaga, ScD, MPH[a,e]

Background: Antiretroviral post-exposure prophylaxis (PEP) is recommended to prevent HIV infection after a high-risk exposure, but current regimens have presented challenges in tolerability, regimen completion, and potential drug–drug interactions. Because coformulated bictegravir, emtricitabine, and tenofovir alafenamide [BIC/FTC/tenofovir alafenamide (TAF)] is effective for HIV treatment, it was evaluated for use for PEP.

Setting: Boston community health center.

Methods: Individuals accessing PEP were enrolled in an open-label study of coformulated BIC/FTC/TAF, taken as one pill daily for 28 days. Pearson's χ^2 and Fisher's exact tests were used to assess whether BIC/FTC/TAF differed with respect to side effects and regimen completion rates compared with historical PEP regimens.

Results: Between August, 2018 and March, 2020, 52 individuals enrolled in the study. Most identified as cisgender gay (67.3%) or bisexual (11.5%) men, but 7.7% identified as cisgender heterosexual men and 3.8% cisgender heterosexual women. The most common regimen side effects were nausea or vomiting (15.4%), fatigue (9.6%), and diarrhea/loose stools (7.7%), which were less common than historical controls using other PEP regimens, including those containing other integrase strand transfer inhibitors. Only 1 participant discontinued the regimen because of fatigue, and all other side effects were self-limited. Almost all participants (90.4%) completed the indicated regimen, which was a higher completion rate compared with earlier PEP regimens, and none became HIV-positive.

Conclusions: BIC/FTC/TAF coformulated as a single daily pill was found to be safe, well-tolerated, and highly acceptable when used for PEP, and compared more favorably than historical PEP regimens used at an urban health center.

Key Words: post-exposure prophylaxis, PEP, HIV prevention, bictegravir, tenofovir alafenamide, emtricitabine

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From the [a]The Fenway Institute, Fenway Health, Boston, MA; [b]Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA; [c]Harvard Medical School, Boston, MA; [d]Gilead Sciences, Foster City, CA; and [e]Department of Epidemiology, UCLA Fielding School of Public Health, Los Angeles, CA.
Presented as a poster at the Conference on Retroviruses and Opportunistic Infections; March 4–7, 2019; Seattle, WA.
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INTRODUCTION

Although no human data are available from randomized controlled clinical trials that demonstrate the efficacy of antiretroviral postexposure prophylaxis (PEP) in preventing HIV infection, it has become an accepted modality for individuals who sustained a recent potential exposure to HIV for close to 2 decades.[1] The empirical support for this approach has been based on numerous simian retroviral challenge studies[2–4] and a retrospective case control study of HIV-exposed health care workers, whose risk for seroconversion was decreased by more than 80% if they used postexposure azidothymidine.[5] The demonstrated safety and efficacy of daily emtricitabine (FTC) and tenofovir-containing regimens for pre-exposure prophylaxis (PrEP) in approximately one million people has provided some additional corroborative support for the use of antiretroviral chemoprophylaxis.[6]

However, the incidence of PEP-associated adverse events related to the first approved regimens was over 60%, primarily because of the use of zidovudine and protease inhibitors.[7,8] Although most of these adverse effects were not intolerable, experience from both occupational and nonoccupational settings found that close to 1/2 of individuals for whom PEP was recommended failed to complete their prescribed regimen.[8,9] Drug–drug interactions with other medications created other complications.[10] The demonstration of the excellent efficacy and tolerability of integrase strand transfer inhibitors as a part of a highly active antiretroviral therapy regimen has created new opportunities to create simpler and better tolerated PEP regimens. Prior studies found that raltegravir given twice a day in conjunction with once daily coformulated tenofovir disoproxil fumarate (TDF) and FTC was safe, and well-tolerated, but some participants did not complete the regimen as prescribed, often because of not adhering to the twice daily use of raltegravir.[11] A subsequent study of the single pill coformulation of

"…was found to be safe, well-tolerated, and highly acceptable when used for PEP, and compared more favorably than historical regimens…"

Mayer KH, et al. J Acquir Immune Defic Syndr. 2022 May 1;90(1):27-32

How Dr. Hurt thought this through

- **Likelihood of infection was low, but not zero**

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1. Politch JA, et al. AIDS. 2016 Jul 31;30(12):1899-903

How Dr. Hurt thought this through

- **Likelihood of infection was low, but not zero**
  - FwB had other partners (GC contact), so could have had acute HIV
  - Pre-ejaculatory fluid can contain HIV RNA (though it's uncommon) [1]
  - Mike had 2 doses of FTC/TDF in his system at time of sex on 10/8
    - Pharmacokinetic modeling from iPrEx suggested two doses per week reduced risk of transmission by approximately 76% [2]

1. Politch JA, et al. AIDS. 2016 Jul 31;30(12):1899-903
2. Grant RM, et al. Lancet Infect Dis. 2014;14(9):820-9

How Dr. Hurt thought this through – cont'd

- False positive rate for HIV Ag/Ab is low, but not zero

How Dr. Hurt thought this through – cont'd

- **False positive rate for HIV Ag/Ab is low, but not zero**
  - Of 23 reactive "fourth generation" tests among 7,802 performed across the VAMC in 2017-18, 7 were false-positives (0.09%) [3]

3. Petersen J, et al.. Fed Pract. 2021 May;38(5):232-237

How Dr. Hurt thought this through – cont'd

- **False positive rate for HIV Ag/Ab is low, but not zero**
  - Of 23 reactive "fourth generation" tests among 7,802 performed across the VAMC in 2017-18, 7 were false-positives (0.09%) [3]
  - CDC: in a high-prevalence population*, one can expect 20 false positive Ag/Ab results out of 10,000 tests performed [4]

* defined as 2% of population with HIV

3. Petersen J, et al.. Fed Pract. 2021 May;38(5):232-237
4. https://www.cdc.gov/hiv/pdf/testing/cdc-hiv-factsheet-false-positive-test-results.pdf

How Dr. Hurt thought this through – cont'd (2)

- **Having ARVs in your blood delays HIV seroconversion**

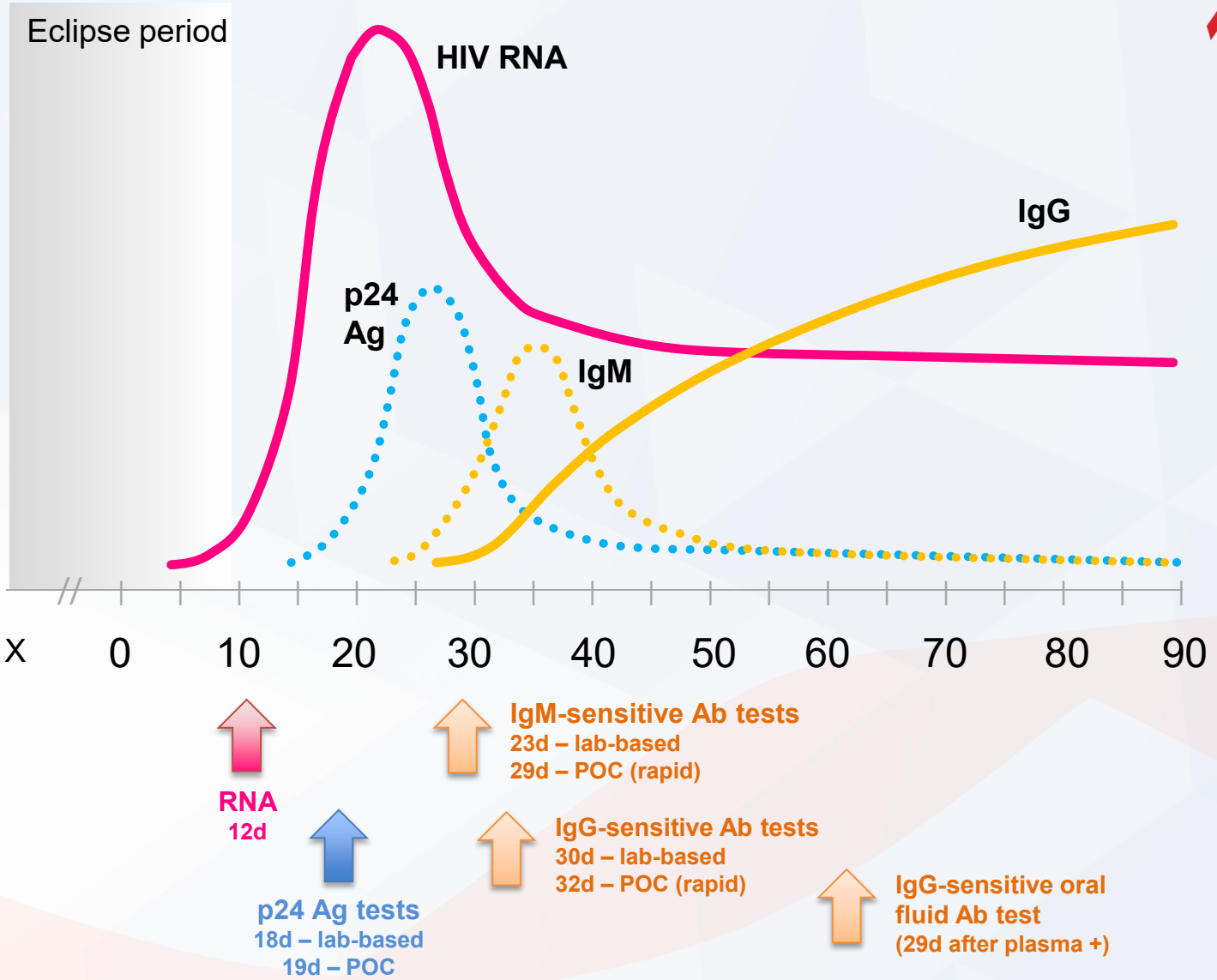

Illustration by Christopher Hurt

Adapted from Branson BM, et al. Laboratory testing for the diagnosis of HIV infection: updated recommendations (2014) and updated with data from Delaney K, et al. Clin Infect Dis. 2017;64(1):53-9. PubMed PMID: 27737954.

Quantity of target depends on the specimen

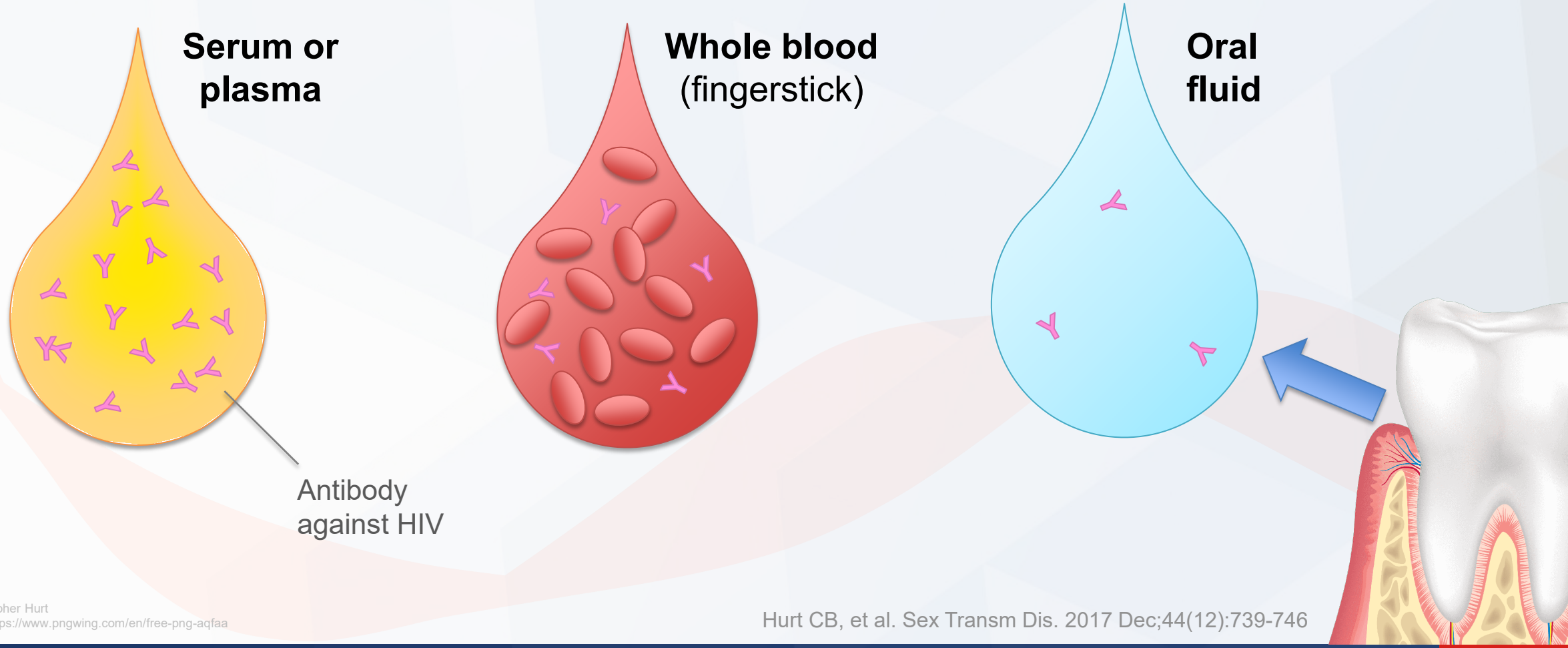

Illustration by Christopher Hurt
Tooth image from: https://www.pngwing.com/en/free-png-aqfaa

Hurt CB, et al. Sex Transm Dis. 2017 Dec;44(12):739-746

Window period depends on the test and time

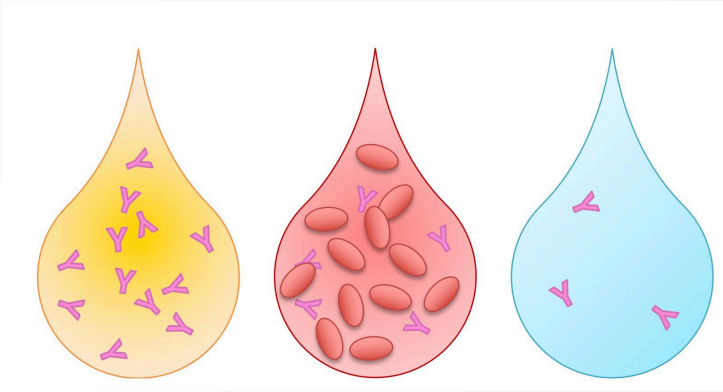

Illustration by Christopher Hurt

Hurt CB, et al. Sex Transm Dis. 2017 Dec;44(12):739-746

How Dr. Hurt thought this through – cont'd (2)

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5. Donnell D, et al. AIDS. 2017;31(14):2007-16

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  - HPTN 083 (CAB vs FTC/TDF): there were 39 infections among those randomized to FTC/TDF and 4 randomized to CAB-LA [7]
    - 31-day delay in detection on FTC/TDF
    - 98-day delay in detection on CAB-LA

5. Donnell D, et al. AIDS. 2017;31(14):2007-16
6. Sivay MV, et al. JAIDS 2017;75(3):271-9
7. Marzinke MA, et al. J Infect Dis. 2021;224(9):1581-92

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RNA levels will be lower than expected, also – but because viral load detection involves nucleic acid *amplification*, early detection is still reliable.

Managing "ambiguous" test results

CDC outlined an approach in 2018

Open Forum Infectious Diseases
MAJOR ARTICLE

A Strategy for PrEP Clinicians to Manage Ambiguous HIV Test Results During Follow-up Visits

Dawn K. Smith, William M. Switzer, Philip Peters, Kevin P. Delaney, Timothy C. Granade, Silvina Masciotra, Luke Shouse, and John T. Brooks

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Keywords. PrEP; pre-exposure prophylaxis; HIV testing; seroconversion.

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POTENTIAL SCOPE OF THE PROBLEM

Frequency of HIV Infection Among Persons Taking PrEP

Acquiring HIV infection by persons taking PrEP is uncommon. In 32 international open-label demonstration projects, Mera et al. reported 67 infections during ≥7061 cumulative person-years of FTC/TDF exposure for a seroconversion rate of 0.95/100 person-years of use (95% CI, 0.74, 1.21) [10]. Marcus et al. reported no seroconversions during 5104 person-years of PrEP in an observational cohort in northern California [11]. Thus, the expected frequency of new infections when patients are taking PrEP as prescribed is expected to be low, but the absolute number of new infections may increase as PrEP is more widely used.

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In the context of PrEP, the probability of someone who is not infected testing falsely positive is low; however, with more testing, the number of false-positive tests observed will increase. Rigorous licensing and manufacturing requirements help ensure that false-positive HIV test results are rare. For example, in the iPrEx PrEP trial, there were 8 reactive test results resolved as false-positive among 50 260 tests of 2499 study participants [12]. In the US PrEP Demonstration Project, there were 6 reactive rapid point of care (POC) HIV test results and 3 reactive antigen/antibody (Ag/Ab) laboratory tests resolved as false-positive among 2680 and 2673 tests, respectively [13]. In both studies, a negative HIV RNA test was used to resolve HIV

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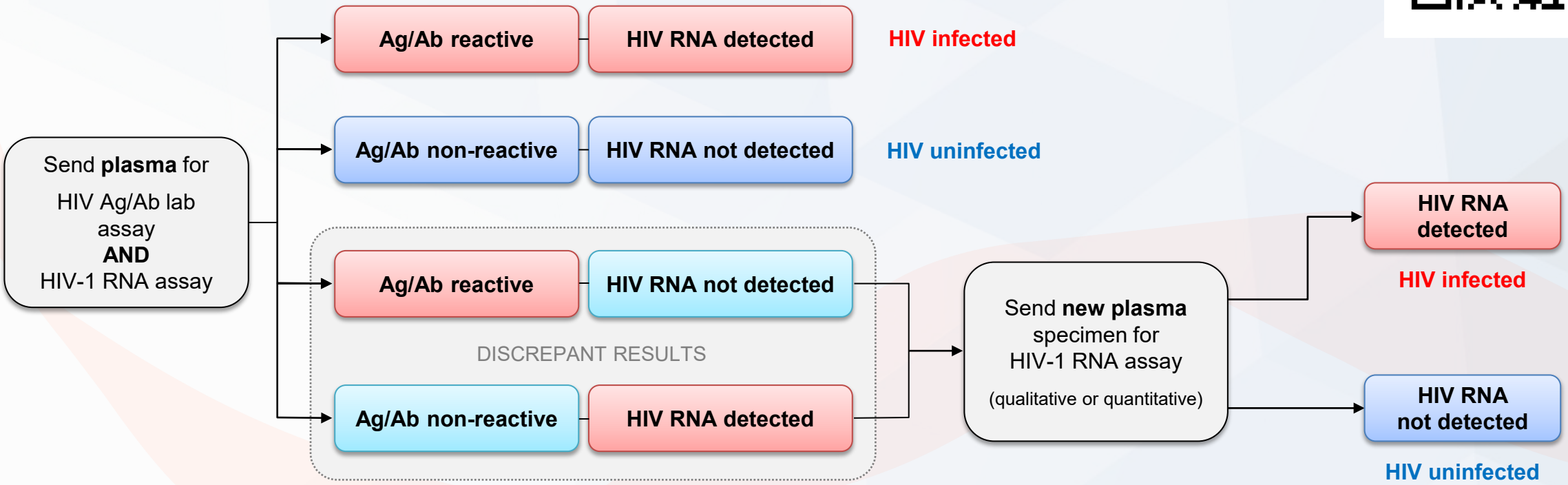
1. Continue FTC/TDF as PrEP while additional HIV testing is performed
2. Add another agent while additional testing is conducted (i.e., convert to PEP)
3. Discontinue PrEP and monitor with lab testing to confirm or refute infection

Smith DK, et al. Open Forum Infect Dis. 2018;5(8):ofy180

HIV testing in 2021 PrEP guidelines

For patients who have taken any oral ARVs in prior 3m
OR received an injection of CAB-LA in prior 12m



Adapted from Figure 4b from USPHS 2021 PrEP Guideline Update

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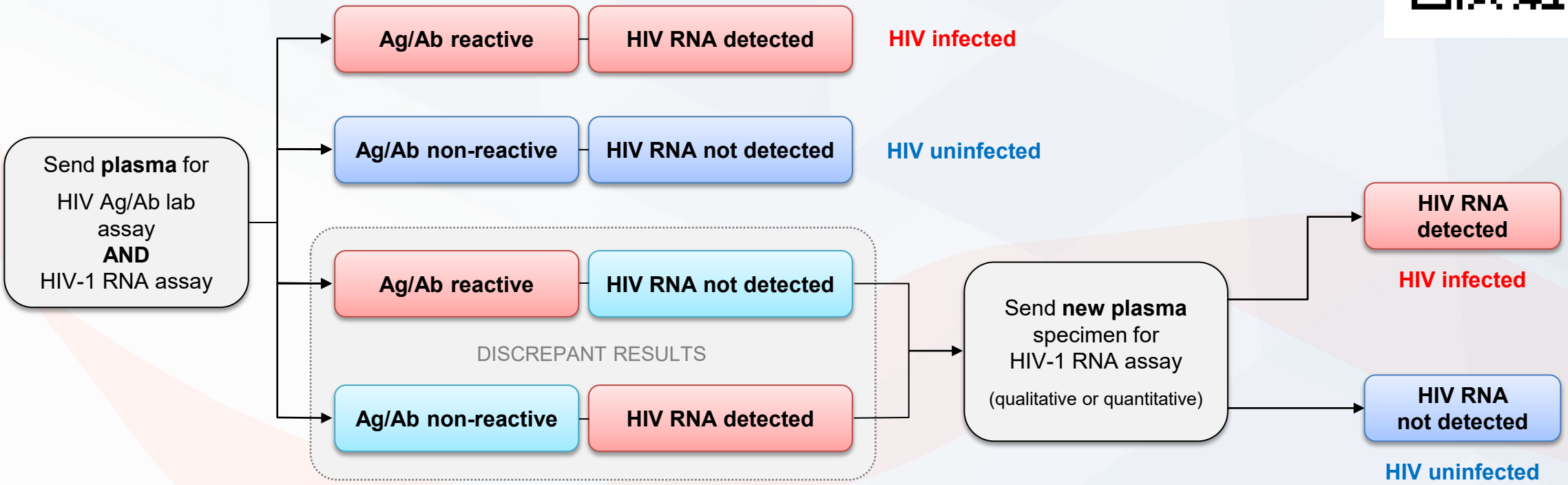

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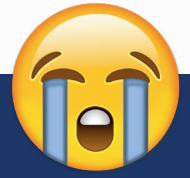
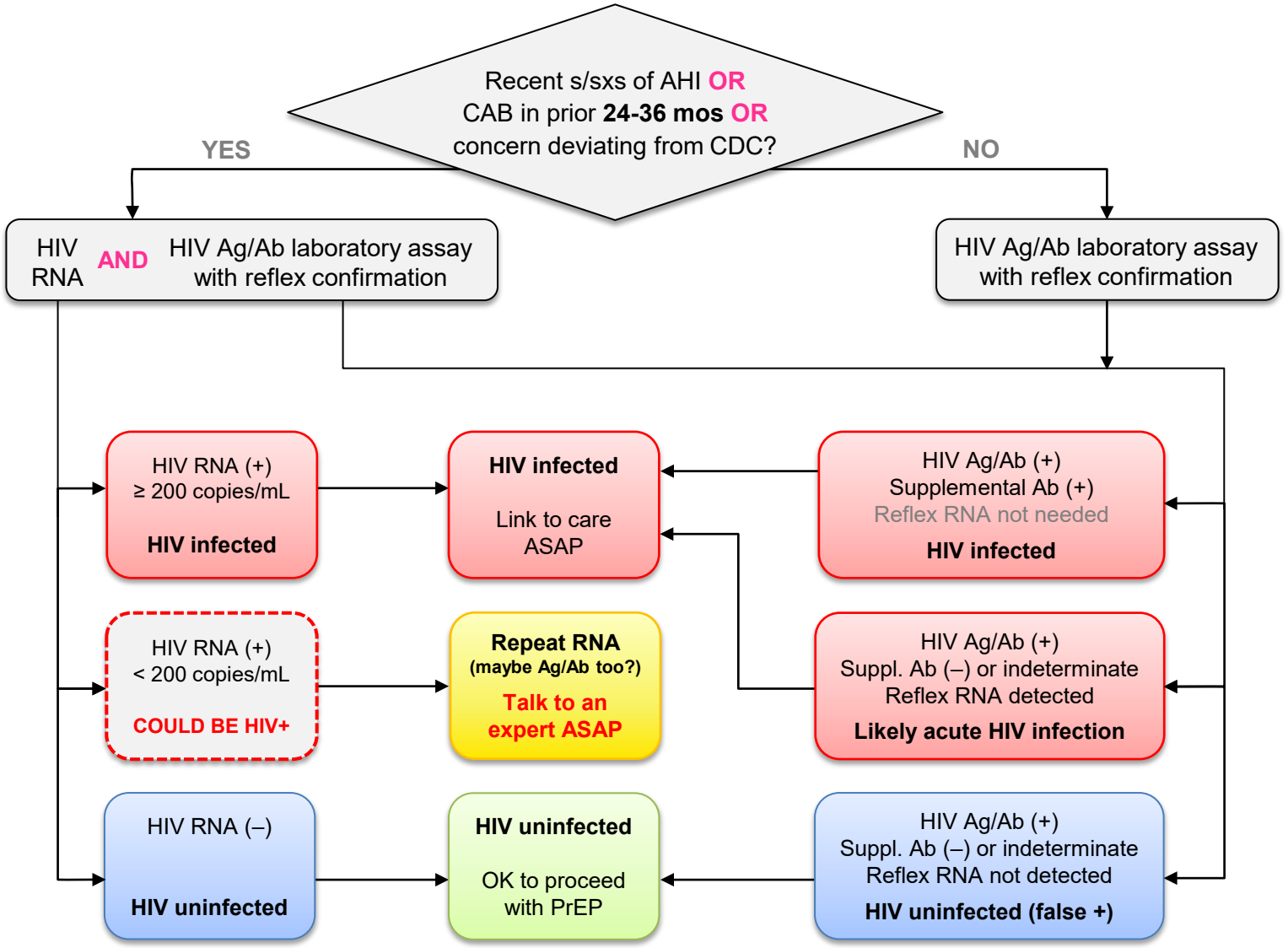


← Dr. Hurt (and many colleagues) when the new guidelines came out

Suggested approach for HIV testing on PrEP



No useful role for rapid / point-of-care tests for on-PrEP monitoring

Polling Question #2

What's your current practice for patients on "maintenance" PrEP with oral FTC/TDF or oral FTC/TAF?

A. HIV Ag/Ab every 3 months
B. HIV Ag/Ab every 6-12 months
C. HIV Ag/Ab and HIV RNA every 3 months
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Case 1: “Mike” – false positive!

- Dr. Hurt coordinated with the UNC CFAR’s clinical lab to perform HIV DNA testing on a sample of Mike’s blood (not detected).

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Case 1: "Mike" – false positive!

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- HIV RNA testing was repeated every 8 weeks for 6 months.
- Mike restarted FTC/TDF as PrEP in mid-2019.
- Mike remains HIV-free as of most recent follow-up in June 2023.

Case 2: “Thomas” (June 2021)

- 18 years old, without any significant past medical history

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- 18 years old, without any significant past medical history
- Came out to his mom, who’s a provider at UNC
- Mom contacted Dr. Hurt to get Thomas on PrEP

Case 2: "Thomas" (June 2021) – cont'd

- Honor Roll student heading off to college in the NE that fall

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- Thomas takes no medications currently
- In the 6 months prior to visit, has had 2 cis male partners for oral sex and RAI (for which he "always" uses condoms)
- Free of any symptoms concerning for acute HIV infection
- Lab-based, automated HIV Ag/Ab was **non-reactive**
- HIV RNA was **not detected** (trust but verify…)
- *Visit was prior to FDA approval of cabotegravir for PrEP*

Polling Question #3: "Thomas"

What would you recommend for Thomas?

A. Start taking a daily multivitamin to build an adherence habit and return in 1 month.
B. Daily oral PrEP with FTC/TDF
C. On-demand ("2-1-1") PrEP with FTC/TDF
D. Daily oral PrEP with FTC/TAF
E. On-demand ("2-1-1") PrEP with FTC/TAF

Polling Question #3: "Thomas"

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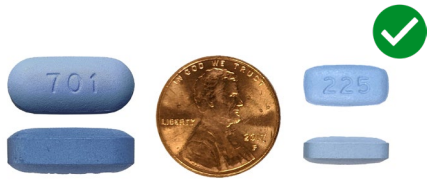
How Dr. Hurt discussed this with "Thomas"

Track Record

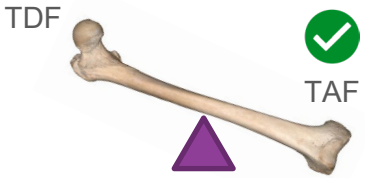
Pill size



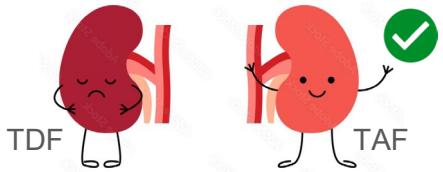
Weight change

TDF	TAF
- 0.1 kg	+1.1 kg

Bone health



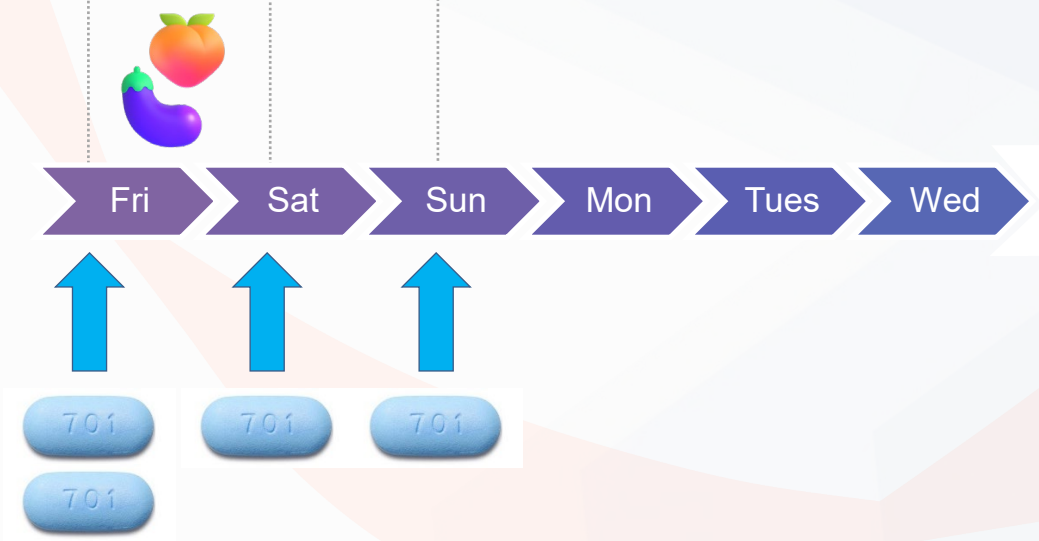
Kidney health



FOR WEIGHT CHANGE AND BMD CHANGE DATA, SEE SUPPLEMENTARY MATERIAL from → Mayer KH, et al. Lancet. 2020 Jul 25;396(10246):239-254. PMID: 32711800

"2-1-1" sounds easier than it actually is

- Two FTC/TDF tablets 2-24h before sex
  - One FTC/TDF tablet 24h after first two tablets
    - One FTC/TDF tablet 48h after first two tablets



Only FTC/TDF has been studied for on-demand use!

IPERGAY
Molina JM, et al. N Engl J Med. 2015;373:2237-2246.
Molina JM, et al. Lancet HIV. 2017;4:e402-e410.
Antoni G, et al. Lancet HIV. 2020 Feb;7(2):e113-e120

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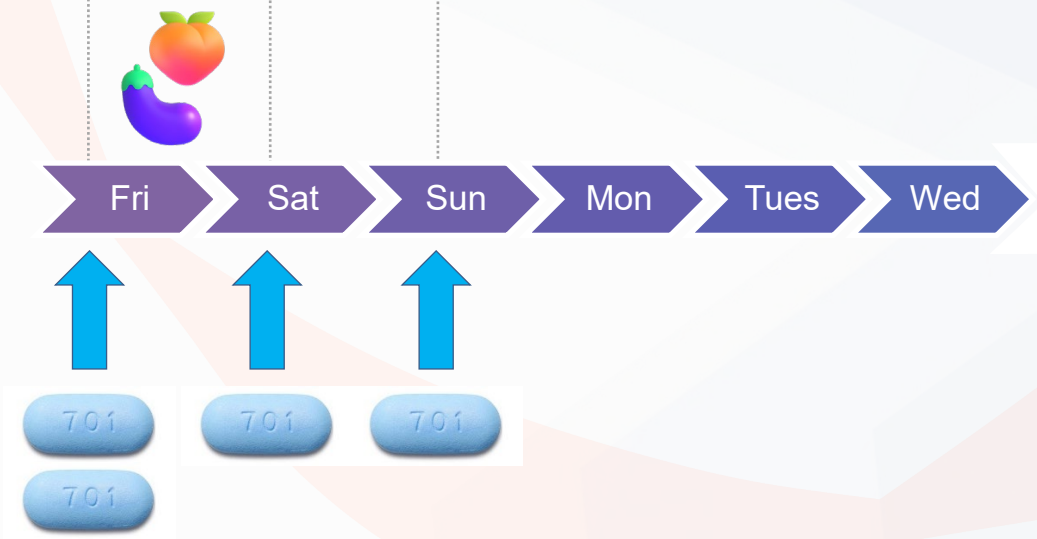
http://www.croiwebcasts.org/p/2021croi/croi/148
https://www.natap.org/2021/CROI/croi_55.htm

"2-1-1" sounds easier than it actually is

- Two FTC/TDF tablets 2-24h before sex
  - One FTC/TDF tablet 24h after first two tablets
    - One FTC/TDF tablet 48h after first two tablets



Dosing continues until the *day after the day after* the last "sex day"

Adapted from → Saberi, P., Scott, H.M. *J Gen Intern Med* 35, 1285–1288 (2020)

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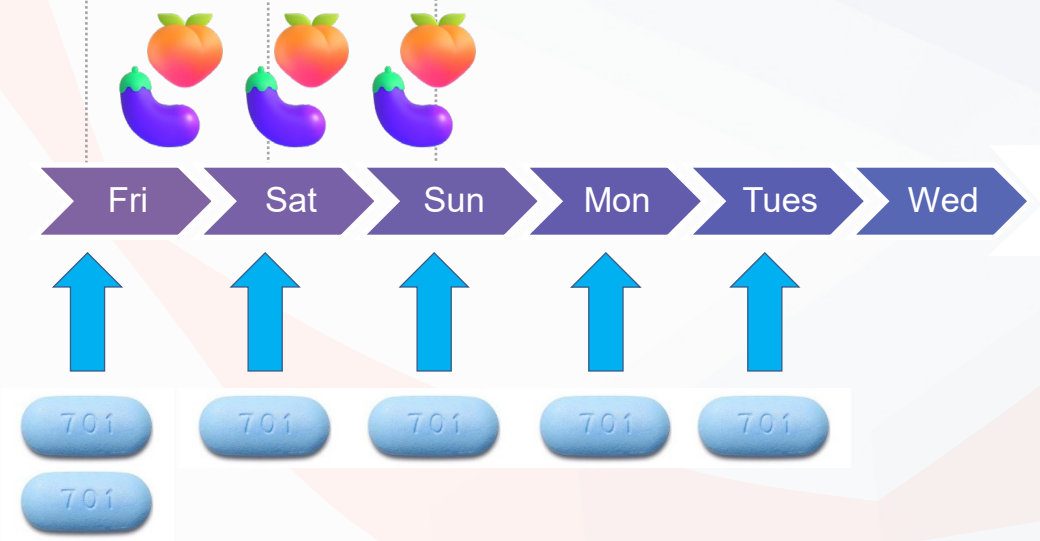

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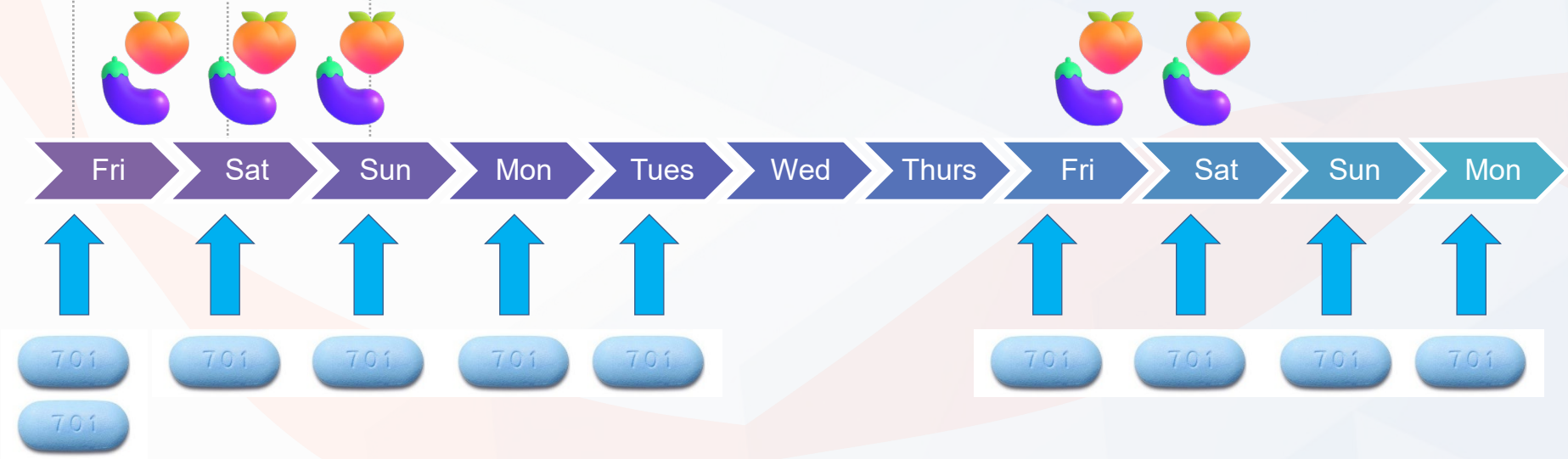

If less than 7 days elapse between end of one dosing period and next sex, take ONE tablet to restart

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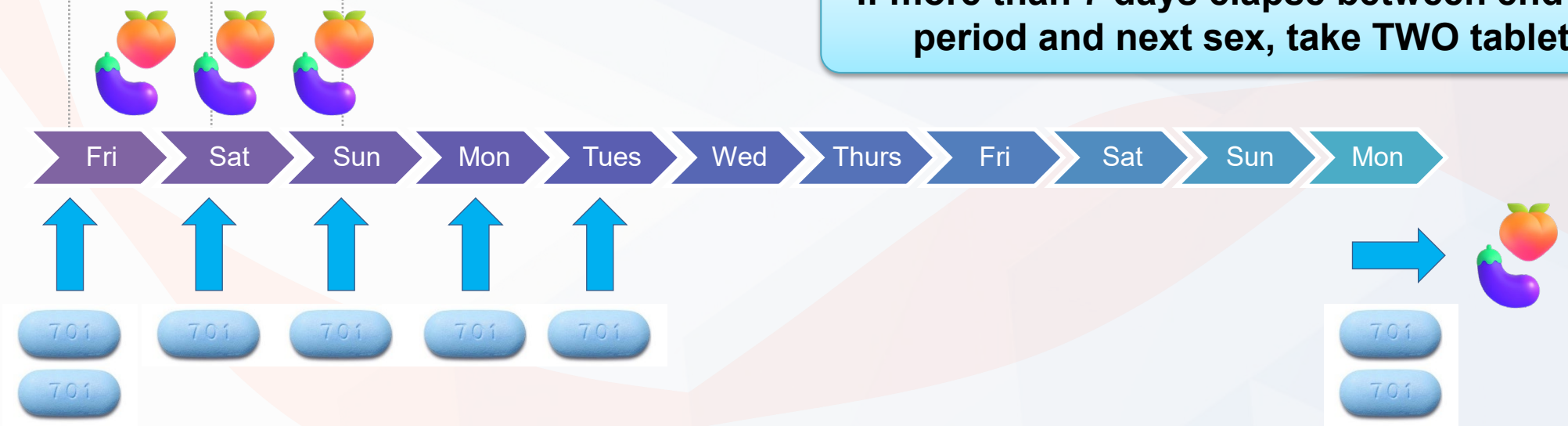
If more than 7 days elapse between end of one dosing period and next sex, take TWO tablets to restart



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Polling Question #4

On average, by what age is peak bone mineral density achieved in an otherwise healthy person?

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C. 21-25
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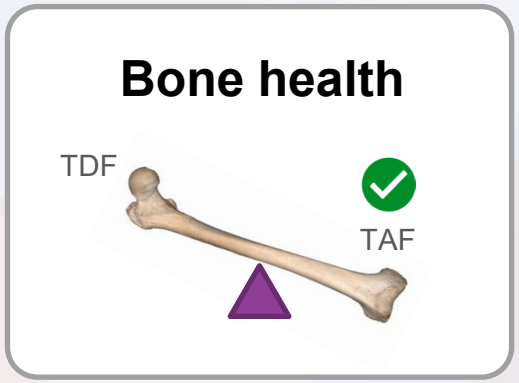
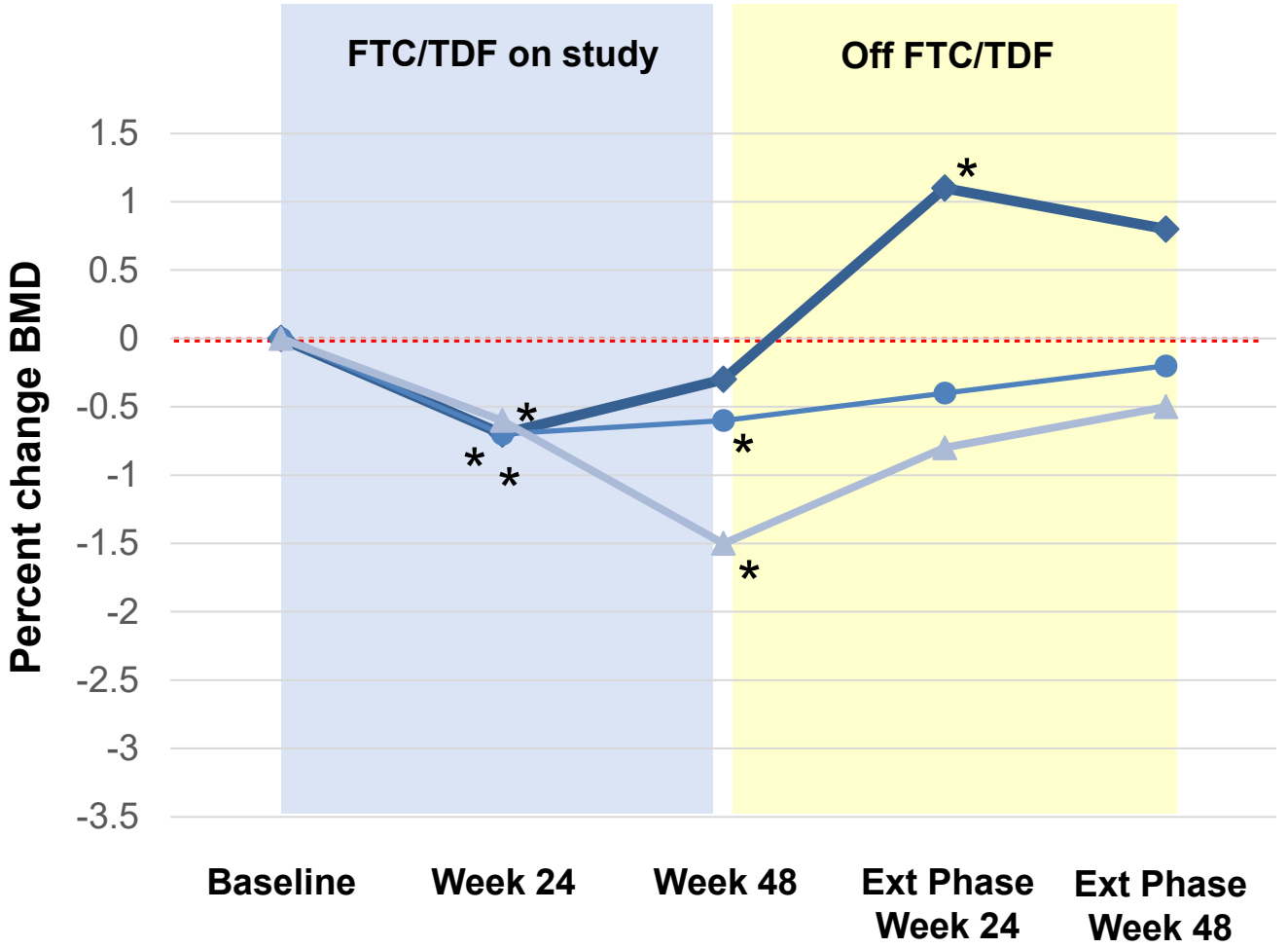


Chevalley T, Rizzoli R. Best Pract Res Clin Endocrinol Metab. 2022 Mar;36(2):101616
Gordon RJ, Misra M, Mitchell DM. Endotext.org (via NLM) – https://www.ncbi.nlm.nih.gov/books/NBK593436/

Adolescent & YA bone health on FTC/TDF

Project PrEPare (ATN 110), 72 who stopped FTC/TDF



18-22
years old

Spine
P=0.03 vs W48
P=0.04 vs BL

Whole Body
P=0.01 vs W48
P=0.7 vs BL

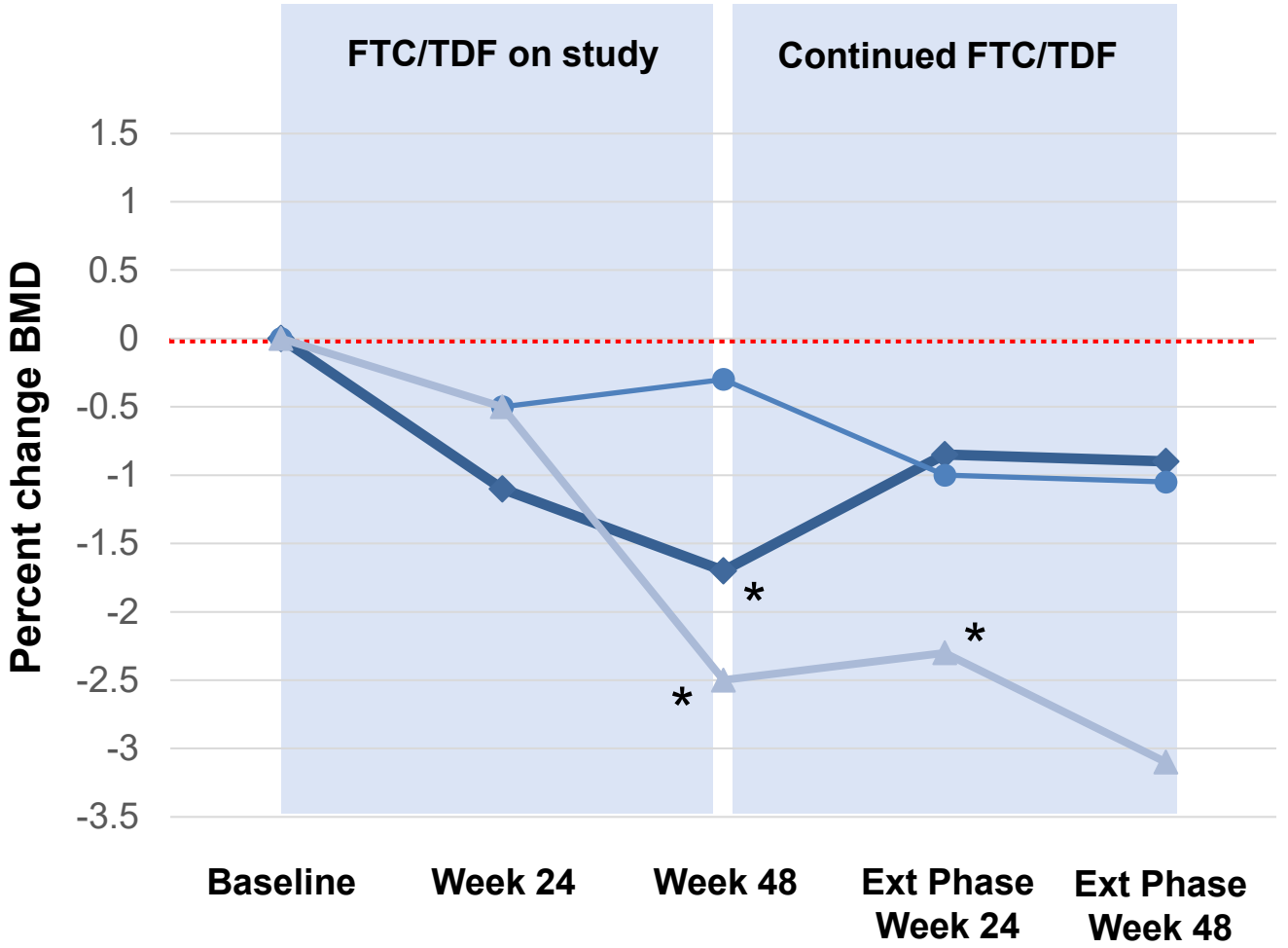
Hip
P=0.04 vs W48
P=0.5 vs BL

* $P < 0.05$ vs BL

Mulligan K, et al. 18th Int'l Workshop on Comorbidities and Adverse Drug Reactions in HIV. 12-13 Sept 2016. NYC, NY. Abstract 001 https://www.natap.org/2016/AdverseReactComor/AdverseReactComor_04.htm

Adolescent & YA bone health on FTC/TDF

Project PrEPare (ATN 110), 15 who continued FTC/TDF



18-22 years old

Spine
P=0.15 vs W48
P=0.44 vs BL

Whole Body
P=0.25 vs W48
P=0.17 vs BL

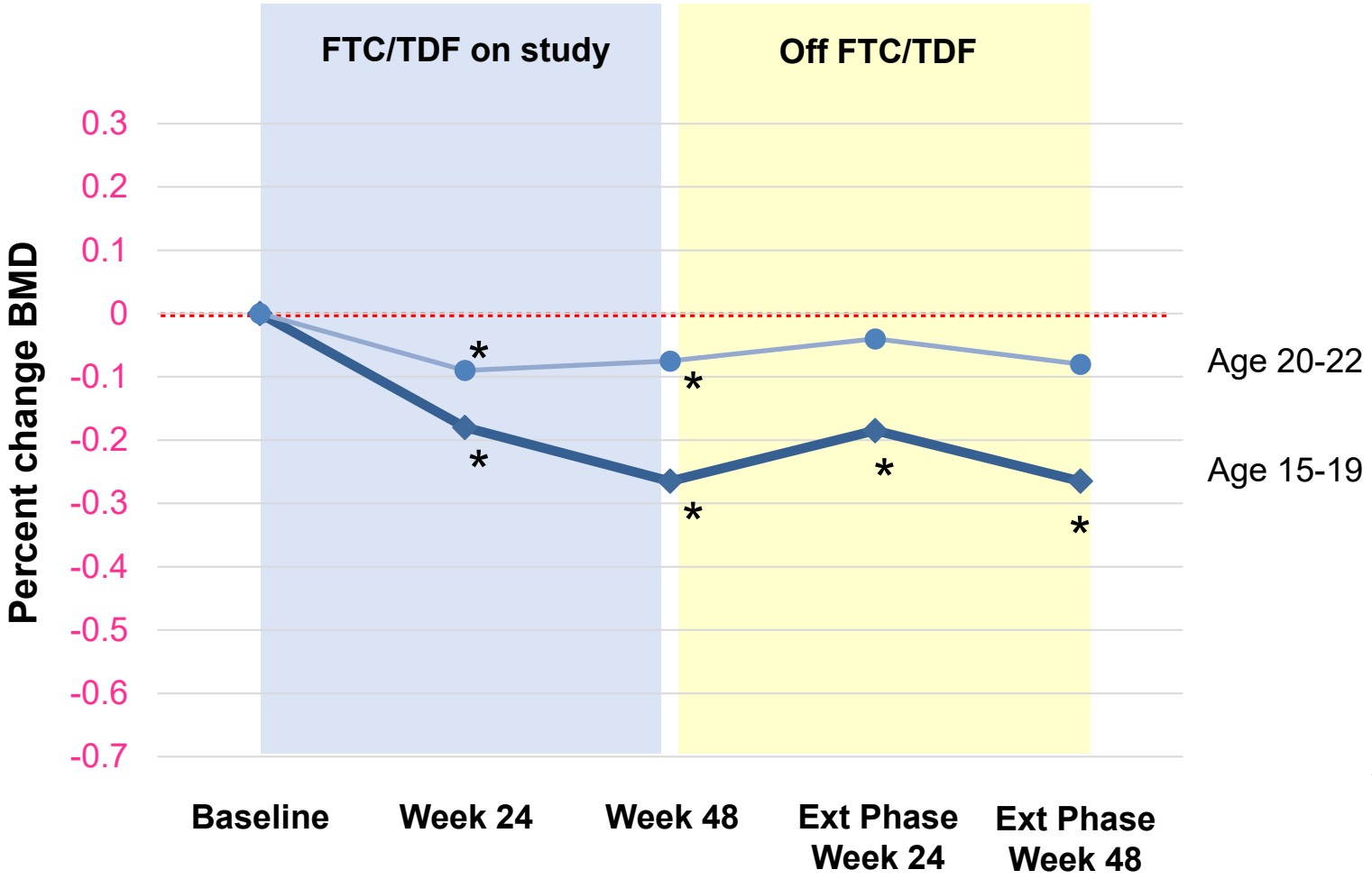
Hip
P=0.57 vs W48
P=0.001 vs BL

* $P < 0.05$ vs BL

Mulligan K, et al. 18th Int'l Workshop on Comorbidities and Adverse Drug Reactions in HIV. 12-13 Sept 2016. NYC, NY. Abstract 001 https://www.natap.org/2016/AdverseReactComor/AdverseReactComor_04.htm

Adolescent & YA bone health on FTC/TDF

Projects PrEPare (ATN 110) and PrEPare 2 (ATN 113)



Havens PL, et al. Clin Infect Dis. 2020 Feb 3;70(4):687-691. PMID: 31179503; PMCID: PMC7319267 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7319267

Is there an “antidote” for this?

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+

−

Vitamin D_3 (or D_2)
4,000 IU daily

Calcium (carbonate)
1,000 mg daily

ACTG 5280: 4000 IU D3 + 1000 mg CaCO3 attenuated bone turnover by 50% among 165 PwH starting EFV/FTC/TDF – Overton ET, et al. Ann Intern Med. 2015 Jun 16;162(12):815-24
CCTG 595: adding 4000 IU D3 after 24 weeks of FTC/TDF PrEP reduced markers of turnover among YA MSM & TGW – Nanayakkara DD, et al. AIDS Res Hum Retroviruses. 2019 Jul;35(7):608-614

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- He transferred his PrEP care to campus and just finished his first year in college… *they grow up so fast!* 😭

https://www.wikiart.org/en/keith-haring/stop-aids-1989

Thank you!

Questions?

Christopher Hurt, MD, FIDSA

churt@med.unc.edu