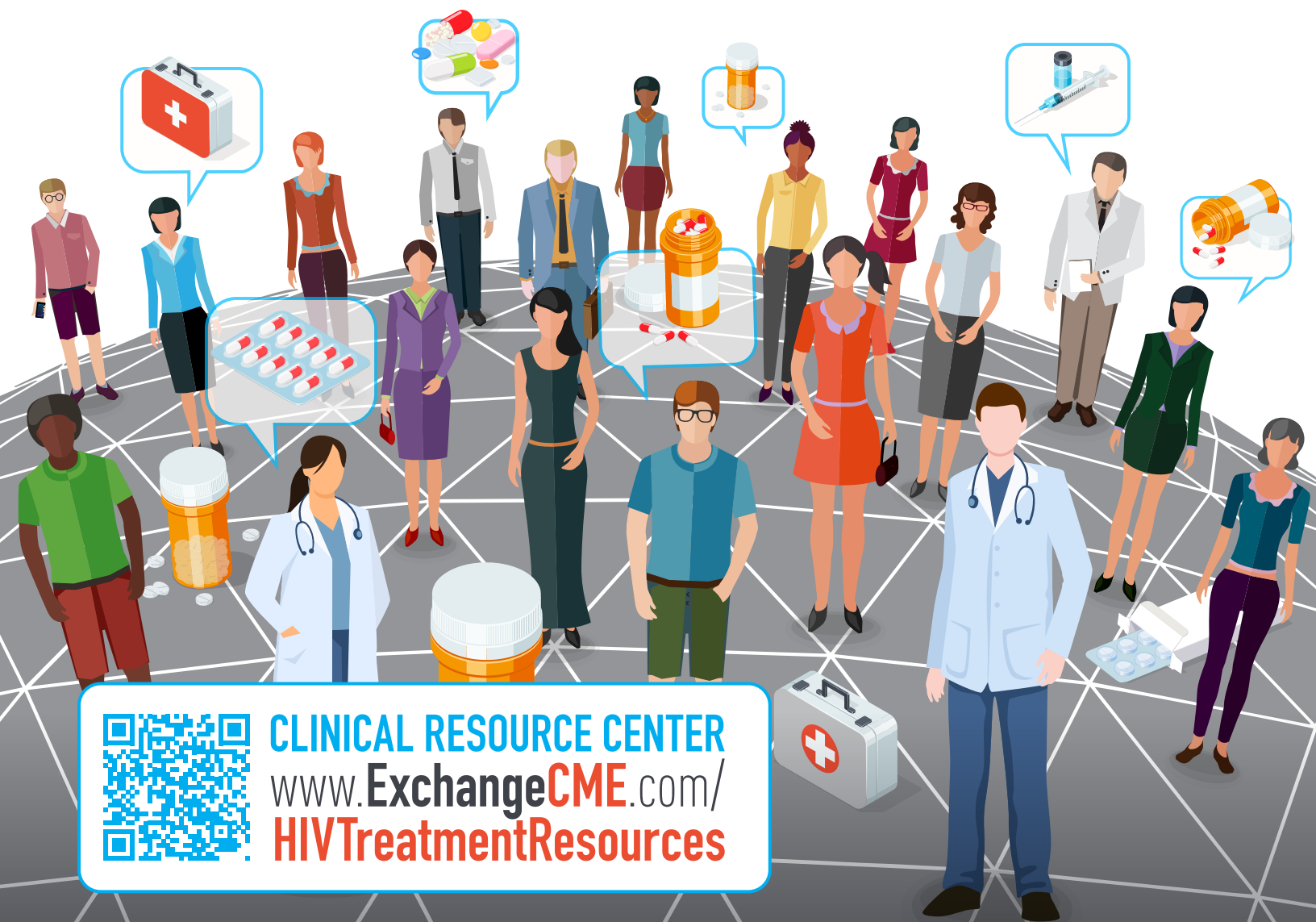


Real-World Perspectives™

# Honing Clinical Skills in HIV Treatment:

Considering the Patient, the Provider & the Science

SUNDAY, JULY 18, 2021 • 11:00 AM-12:30 PM CET



CLINICAL RESOURCE CENTER  
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Postgraduate Institute  
for Medicine



This activity is jointly provided by the Postgraduate Institute for Medicine and Integritas Communications.  
This activity is supported by an independent educational grant from Gilead Sciences, Inc.  
This satellite session is open to all registered attendees of the 11th IAS Conference on HIV Science (IAS 2021).

## **CME/MEDICAL COMMUNICATIONS INQUIRIES**

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[integritasgrp.com](http://integritasgrp.com)



## FACULTY

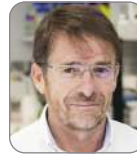


### **Eric S. Daar, MD**

#### *Moderator*

*Chief of the Division of HIV Medicine  
Harbor-University of California, Los Angeles  
(UCLA) Medical Center  
Professor of Medicine  
David Geffen School of Medicine at UCLA  
Los Angeles, California*

Dr. Eric Daar is Chief of the Division of HIV Medicine at Harbor-UCLA Medical Center and Professor of Medicine at the David Geffen School of Medicine at UCLA. He has devoted his career to treating patients with HIV infection and studying the pathogenesis of acute and chronic infection, as well as further defining the optimal management of HIV infection and its complications. Following his undergraduate education at UCLA, he attended Georgetown University Medical School and did both his Internal Medicine residency and Infectious Diseases fellowship at Cedars-Sinai Medical Center. His most recent research focuses on HIV immuno- and neuro-pathogenesis, along with optimizing therapy for HIV and HCV infection. He is also involved in studying strategies for prevention and treatment of COVID-19. Additional research is in the area of HIV testing, linkage, retention in care, and prevention. He has published more than 550 peer-reviewed manuscripts and abstracts and serves on the Editorial Board and/or as a reviewer for many high-profile scientific journals. Chair of the Antiretroviral Therapy Strategies Subcommittee of the AIDS Clinical Trials Network, Dr. Daar also serves on the Department of Health and Human Services Adult and Adolescent HIV Treatment Guidelines Panel and the National Institutes of Health's COVID-19 Treatment Guidelines Panel.



### **José R. Arribas, MD**

*Head, Infectious Diseases Unit  
Research Director of HIV and  
Infectious Diseases  
La Paz Hospital  
Associate Professor of Medicine  
Autonoma University School of Medicine  
Madrid, Spain*

Dr. José Arribas is currently the head of the Infectious Diseases Unit and Research Director of HIV and Infectious Diseases at La Paz Hospital, and associate professor of Medicine at the Autonoma University School of Medicine, all in Madrid, Spain. Dr. Arribas received his medical degree from the Complutense University School of Medicine, Madrid. Following this, he completed his residency in Internal Medicine at La Paz Hospital before going on to pursue a fellowship in Infectious Diseases at Washington University, St. Louis, Missouri. During his fellowship, he performed clinical research at the Washington University AIDS Clinical Trials Unit.

His research interests, which include antiretroviral therapy, development of new antiretrovirals and emerging infectious diseases have driven the publication of more than 350 scientific papers many of them clinical trials or antiretroviral therapy. Dr. Arribas is president of GESIDA (Spanish Group for the study of AIDS), a member of the GESIDA antiretroviral therapy expert guidelines, and chair of the antiretroviral panel of the European AIDS Clinical Society (EACS) guidelines. He is a member of the editorial committees of Antiviral Therapy, HIV Medicine, Open Forum Infectious Diseases, and Lancet HIV.

# Honing Clinical Skills in HIV Treatment: Considering the Patient, the Provider & the Science



## **Seble G. Kassaye, MD, MS**

*Associate Professor of Medicine  
Georgetown University  
Infectious Disease Physician  
Unity Health Care  
Washington, District of Columbia*

Dr. Seble Kassaye is an Associate Professor of Medicine at Georgetown University and an Infectious Disease Physician with Unity Health Care in Washington, DC. Dr. Kassaye's career has been driven by her clinical experiences taking care of HIV-positive patients. Her research interests are primarily derived from a strong interest in increasing access to effective HIV prevention and treatment strategies to the most at risk, indigent, and socially vulnerable populations. This is exemplified in her research that spans the translational spectrum, from the molecular epidemiology of HIV including drug resistance; long-term outcomes and comorbidities particularly in women; and prevention of HIV including during pregnancy. She has supported novel privacy-assured technology approaches to support public health initiatives in HIV and more recently with COVID-19. Dr. Kassaye serves as the principal investigator of the DC MACS/WIHS Combined Cohort Study, a multisite national study of HIV and co-morbidities, and the site principal investigator for a newly established cohort of young women living with HIV in the southern U.S. (STAR cohort). Since joining the Infectious Diseases faculty at Georgetown University Infectious Diseases faculty, she is working in clinical and epidemiologic studies focused on co-morbidities and long term outcomes in the setting of HIV, within the District of Columbia and globally.



## **Aadia Rana, MD**

*Associate Professor of Medicine  
University of Alabama-Birmingham  
Associate Scientist  
UAB Center for AIDS Research  
Birmingham, Alabama*

Dr. Aadia Rana is an Associate Professor of Medicine at the University of Alabama-Birmingham (UAB) and an Associate Scientist with the UAB Center for AIDS Research. Dr. Rana's primary area of research focuses on disparities in access and adherence to medical treatment among people living with HIV (PLHIV), and implementation of evidence-based interventions to improve engagement with HIV care. Her work incorporates health services research, behavioral sciences, social sciences, and clinical medicine. She has a career developmental grant from the National Institute of Mental Health evaluating postpartum retention in HIV care in Mississippi and is co-chair of an AIDS Clinical Trials Group randomized control trial testing a strategy of long-acting injectable antiretroviral therapy with conditional economic incentives in PLHIV with a history of nonadherence. She is also co-director of the UAB Center for AIDS Research's Ending HIV in Alabama Scientific Working Group, which includes a broad range of clinical, epidemiologic, and sociobehavioral researchers as well as community and public health partners catalyzing Birmingham and Alabama's progression toward the Joint United Nations Programme on HIV/AIDS (UNAIDS) 90-90-90 goals (<https://www.uab.edu/medicine/cfar/core-facilities/90-90-90-initiative>).

## TARGET AUDIENCE

The educational design of this live activity addresses the needs of HIV-specialist physicians and other clinicians and stakeholders involved in the care of patients with HIV infection.

## PROGRAM DESCRIPTION

As the HIV field continues to advance at a rapid pace, focus in the last several years has shifted to implementation of rapid antiretroviral therapy (ART), care for the growing population of aging patients, management of treatment-resistant disease, and development of long-acting antiretroviral regimens. These increasingly complex clinical tasks call for evidence-based education, brought to life through pertinent patient cases and practice-management scenarios, and supported by expert input. This Real-World Perspectives™ program will provide a platform combining scientific presentation of current and emerging treatment approaches with live discussion and debate surrounding best practices that address the needs of the whole patient. Each program section will begin with a brief video-based case vignette and the audience will have an opportunity to ask questions or make comments regarding clinical decision points relevant to their daily practices.

## EDUCATIONAL OBJECTIVES

After completing this activity, the participant should be better able to:

- Describe the science behind recent advances in HIV treatment
- Implement appropriate workflow protocols to optimize rapid ART implementation
- Tailor ART regimens according to patient comorbidities, risk factors, polypharmacy, viral level, and treatment history

## JOINT ACCREDITATION STATEMENT



In support of improving patient care, this activity has been planned and implemented by the Postgraduate Institute for Medicine (PIM) and Integritas Communications. PIM

is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the health care team.

## PHYSICIAN CONTINUING MEDICAL EDUCATION

PIM designates this live activity for a maximum of 1.5 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

## CONTINUING NURSING EDUCATION

The maximum number of hours awarded for this Continuing Nursing Education activity is 1.5 contact hours.

## DISCLOSURE OF CONFLICTS OF INTEREST

PIM requires instructors, planners, managers, and other individuals who are in a position to control the content of this activity to disclose any real or apparent conflicts of interest (COI) they may have as related to the content of this activity. All identified COI are thoroughly vetted and resolved according to PIM policy.

PIM is committed to providing its learners with high quality activities and related materials that promote improvements or quality in health care and not a specific proprietary business interest of a commercial interest.

**Eric S. Daar, MD:** Consulting Fees: Gilead Sciences, Inc., Merck & Co., Inc., ViiV Healthcare Limited; Contracted Research: Gilead Sciences, Inc., ViiV Healthcare Limited

**José R. Arribas, MD:** Consulting Fees: Alexza Pharmaceuticals, Eli Lilly and Company, EMD Serono, Gilead Sciences, Inc., Janssen Pharmaceuticals, Inc., Merck Sharp & Dohme Corp., Teva Pharmaceuticals USA, Inc., ViiV Healthcare Limited; Fees for Non-CE Services Received Directly from an Ineligible Entity or their Agents: Gilead Sciences, Inc., Janssen Pharmaceuticals, Inc., Merck Sharp & Dohme Corp, ViiV Healthcare Limited; Contracted Research: Gilead Sciences, Inc., ViiV Healthcare Limited

**Seble G. Kassaye, MD, MS:** Nothing to disclose

**Aadia Rana, MD:** Nothing to disclose

Planners and Managers: The PIM planners and managers have nothing to disclose. The Integritas Communications planners and managers have nothing to disclose.

## DISCLOSURE OF UNLABELED USE

This educational activity may contain discussion of published and/or investigational uses of agents that are not indicated by the US Food and Drug Administration.

# Honing Clinical Skills in HIV Treatment: Considering the Patient, the Provider & the Science

The planners of this activity do not recommend the use of any agent outside of the labeled indications. The opinions expressed in the educational activity are those of the faculty and do not necessarily represent the views of the planners. Please refer to the official prescribing information for each product for discussion of approved indications, contraindications, and warnings.

## DISCLAIMER

Participants have an implied responsibility to use the newly acquired information to enhance patient outcomes and their own professional development. The information presented in this activity is not meant to serve as a guideline for patient management. Any procedures, medications, or other courses of diagnosis or treatment discussed or suggested in this activity should not be used by clinicians without evaluation of their patient's conditions and possible contraindications and/or dangers in use, review of any applicable manufacturer's product information, and comparison with recommendations of other authorities.

## FEE INFORMATION & REFUND/ CANCELLATION POLICY

There is no fee for this educational activity.

## INSTRUCTIONS TO RECEIVE CREDIT

In order to receive credit, participants must complete the preactivity questionnaire, posttest, and program evaluation. Participants must also score at least a 75% on the posttest.

## CME QUESTIONS — PIM CONTACT INFORMATION

For information about the accreditation of this program, please contact PIM via email at [inquiries@pimed.com](mailto:inquiries@pimed.com) or at <http://www.pimed.com/>.

## INTEGRITAS CONTACT INFORMATION

For all other questions regarding this activity, please contact Integritas via email at [info@exchangeccme.com](mailto:info@exchangeccme.com).

# THE SCIENCE: Understanding the Tools in Our Arsenal

**Eric S. Daar, MD**

Chief, Division of HIV Medicine, Harbor-UCLA Medical Center  
Investigator, Lundquist Institute for Biomedical Innovation  
Professor of Medicine, David Geffen School of Medicine, University of California, Los Angeles  
Los Angeles, California

## Selecting Initial ART DHHS, IAS-USA, and EACS

### Initiating ART in Most Patients

| ART Regimen                                | DHHS <sup>1</sup> | IAS-USA <sup>2</sup> | EACS <sup>3</sup> |
|--------------------------------------------|-------------------|----------------------|-------------------|
| BIC/TAF/FTC                                | X                 | X                    | X                 |
| DTG + TDF or TAF + 3TC or FTC <sup>a</sup> | X                 | X                    | X                 |
| DTG/ABC/3TC                                | X                 |                      | X                 |
| DTG/3TC <sup>b</sup>                       | X                 | X                    | X                 |
| RAL + TDF or TAF + 3TC or FTC <sup>a</sup> |                   |                      | X                 |

### Rapid ART

| ART Regimen                              | DHHS <sup>1</sup> | IAS-USA <sup>2</sup> |
|------------------------------------------|-------------------|----------------------|
| BIC/TAF/FTC                              | X                 | X                    |
| DTG + TDF or TAF + 3TC or FTC            | X                 | X                    |
| DRV/r or DRV/c + TDF or TAF + 3TC or FTC | X                 | X                    |

<sup>a</sup>TAF+3TC not listed in EACS or IAS-USA; <sup>b</sup>Not recommended for those with HBV or HIV RNA >500,000 copies/mL.

3TC, lamivudine; ABC, abacavir; BIC, bictegravir; c, cobicistat; DHHS, Department of Health and Human Services; DRV, darunavir; DTG, dolutegravir; EACS, European AIDS Clinical Society; FTC, emtricitabine; HBV, hepatitis B virus; IAS-USA, International Antiviral Society-United States of America; r, ritonavir; RAL, raltegravir; TAF, tenofovir alafenamide; TDF, tenofovir disoproxil fumarate.

1. DHHS. <https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv/what-start-initial-combination-regimens-antiretroviral-naive?view=full>. Accessed June 23, 2021.

2. Saag MS, et al. JAMA. 2020;324(16):1651-1669; 3. Ryom L, et al. HIV Med. 2020;21(10):617-624.

## Why Do We Need New ART Regimens?

| Need                              | Patients Virally Suppressed on ART | Patients Struggling With Daily Oral ART | Patients With Multidrug Resistant HIV |
|-----------------------------------|------------------------------------|-----------------------------------------|---------------------------------------|
| Fewer drugs                       | +                                  | +                                       |                                       |
| Reduced toxicity                  | +                                  | +                                       | +                                     |
| Reduced dosing frequency          | +                                  | ++                                      |                                       |
| High barrier to resistance        |                                    | ++                                      | +                                     |
| Active against drug-resistant HIV |                                    |                                         | +++                                   |
| Reduced stigma                    | +                                  | ++                                      | +                                     |
| Safety during pregnancy           | +                                  | +                                       | +                                     |
| Lower cost                        | +                                  | +                                       | +                                     |

## Incorporating Rapid ART Why Can ART Be Started Without Labs?

- More potent and high barrier to resistance
  - Second-generation INSTIs and boosted DRV<sup>1</sup>
  - Virologic success of DTG and BIC regimens even in patients with resistance to NNRTIs, PIs, or NRTIs<sup>2,3</sup>
- Few ART regimen changes have been made because of baseline genotype resistance<sup>4</sup>
- Improved safety profile<sup>1</sup>



INSTI, integrase strand transfer inhibitor; NNRTI, nonnucleoside reverse transcriptase inhibitor; NRTI, nucleoside reverse transcriptase inhibitor; PI, protease inhibitor.  
1. DHHS. <https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv>. Accessed June 23, 2021; 2. Hagins DP, et al. Conference on Retroviruses and Opportunistic Infection (CROI), March 8-11, 2020; virtual conference. Abstract 36; 3. Sax PE, et al. *Clin Infect Dis*. 2020. [Epub ahead of print]; 4. Huhn GD, et al. *Clin Infect Dis*. 2020;71(12):3110-3117.

## New Treatment Approaches and Regimens 2-Drug Regimens

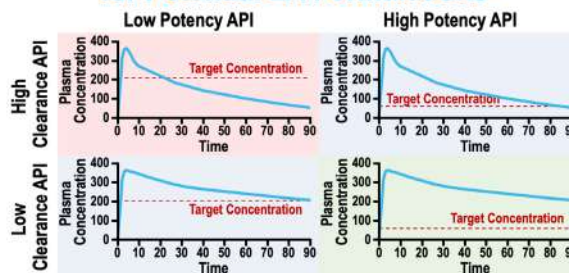
- DTG/3TC should **NOT** be used in patients with:<sup>1-3</sup>
  - HBV
  - HIV RNA >500,000 c/mL
  - No genotypic resistance testing or HBV testing
- Instead of initial treatment, DTG/RPV is recommended as a switch strategy for patients who are virologically suppressed, HBV negative, and without known resistance to DTG or RPV<sup>1</sup>
- Options for avoiding TAF, TDF, or ABC<sup>1</sup>
- DTG always shows high barrier to resistance due to exposure and long binding to integrase enzyme<sup>4</sup>

c/mL, copies/mL; HBV, hepatitis B virus; RPV, rilpivirine.  
1. DHHS. <https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv/what-start-initial-combination-regimens-antiretroviral-naive?view=full>. Accessed June 2, 2021;  
2. Saag MS, et al. *JAMA*. 2020;324(16):1651-1669; 3. Rymon L, et al. *HIV Med*. 2020;21(10):617-624; 4. Back D. *Germs*. 2017;7(3):113-114.

## A Novel ART Formulation Long-Acting CAB/RPV Injection

- CAB/RPV recently approved in select countries for virally suppressed patients with no history of virologic failure who want to switch regimens<sup>1</sup>
  - 1-month oral lead-in required before beginning monthly injections
- CAB/RPV is a solid drug nanoparticle suspension injected IM (gluteal; each as separate injection)<sup>1,2</sup>

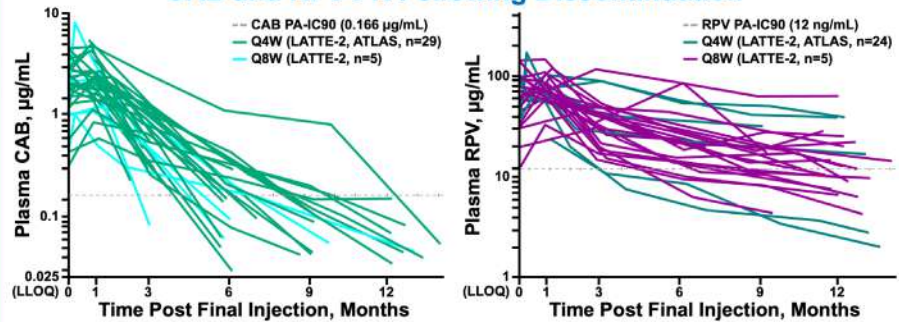
### Relationship Between PK and Potency for Potential LA Formulations<sup>2</sup>



API, active pharmaceutical ingredient; CAB, cabotegravir; IM, intramuscularly; LA, long-acting; PK, pharmacokinetics.  
1. FDA. [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2021/212888s000lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2021/212888s000lbl.pdf). Accessed June 3, 2021; 2. Owen A, Rannard S. *Adv Drug Deliv Rev*. 2016;103:144-156.

## Considerations for CAB/RPV Dosing

### CAB and RPV PK Following Discontinuation



Q4W, every 4 weeks; Q8W, every 8 weeks.  
Ford SL, et al. CROI March 8-11, 2020; virtual conference. Abstract 466.

## Switching Strategies for Virally Suppressed Patients

- Within class
  - Often for better safety profile, higher barrier to resistance, or simpler regimen
- Between classes
  - Avoid switch to low barrier regimen if there is underlying resistance
- 3- or more drug regimen to 2DR
  - Not appropriate with HBV or if there is underlying resistance to any of the agents
- Oral to LA injectable

2DR, 2-drug regimen.  
DHHS. <https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv/optimizing-antiretroviral-therapy-setting-virologic-suppression?view=full>. Accessed June 3, 2021.

## Recently Approved ART for HTE Patients

### Mechanism of Action

- **Ibalizumab**<sup>1,2</sup>
  - Humanized mAb that binds CD4
    - Post attachment inhibitor
  - No cross-resistance with other ART
  - Administered via IV infusion
    - 2000 mg loading dose followed by 800 mg Q2W
- **Fostemsavir**<sup>3</sup>
  - Prodrug of temsavir
  - Inhibits CD4 binding by binding to gp120
    - Blocks viral attachment and entry
  - Given orally twice daily



HTE, heavily treatment experienced; IV, intravenous; gp120, envelope glycoprotein 120; mAb, monoclonal antibody; Q2W, every 2 weeks.  
1. Ernu B, et al. IDWeek. October 4-8, 2017; San Diego, CA. Abstract 1686; 2. Weinheimer S, et al. CROI March 4-7, 2018; Boston, MA; Abstract 561;  
3. Nettles RE, et al. J Infect Dis. 2012. 206(7):1002-1011.

## Novel Mechanisms of Action

### Nucleoside Reverse Transcriptase Translocation Inhibitor

- Islatravir is a first-in-class NRTTI with high potency and long half-life<sup>1</sup>

- Selected ongoing ISL trials:
  - Monthly PrEP<sup>2</sup>
  - HTE (with DOR)<sup>3</sup>
  - Treatment-naïve<sup>4</sup>
  - Virologically suppressed<sup>5</sup>

DOR, dolutegravir; ISL, islatravir; NRTTI, nucleoside reverse transcriptase translocation inhibitor; PrEP, pre-exposure prophylaxis.

1. Molina J-M, et al. European AIDS Conference, November 6-9, 2019, Basel, Switzerland. Abstract PE3/21; 2. ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04003103>. Accessed June 10, 2021; 3. <https://clinicaltrials.gov/ct2/show/NCT04233216>. Accessed June 10, 2021; 4. ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04233879>. Accessed June 10, 2021; 5. ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04223778>. Accessed June 10, 2021.

## Novel Mechanisms of Action

### Capsid Inhibitor

- Lenacapavir is a first-in-class capsid inhibitor with no cross-resistance with other ART classes<sup>1</sup>
- SC every 6 months<sup>2</sup>

- Selected ongoing and future lenacapavir trials:
  - HTE (filed with FDA June 2021)<sup>2</sup>
  - Virologically suppressed<sup>3</sup>
  - LA oral or injectable + ISL<sup>4</sup>

SC, subcutaneously.

1. Sager JE, et al. CROI. March 4-7, 2019; Seattle, Washington. Abstract 141; 2. ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04150068>. Accessed June 10, 2021; 3. ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04143594>. Accessed June 10, 2021; 4. Clinical Trials Arena. <https://www.clinicaltrialsarena.com/news/gilead-merck-partner-long-acting-hiv-treatments/>. Accessed June 10, 2021.

## ADDRESSING SYSTEM BARRIERS TO IMPLEMENTING RAPID ART

**Aadia Rana, MD**

Associate Professor of Medicine, Division of Infectious Diseases  
Associate Scientist, UAB Center for AIDS Research  
The University of Alabama at Birmingham  
Birmingham, Alabama

## Does Early ART Initiation Work?

### • 2011<sup>1,2</sup>

- Prevention of HIV-1 Infection With Early ART
  - Final results in 2016
  - Early ART → 93% lower risk of transmission
  - No linked infections with VS index patient

### • 2015<sup>3</sup>

- Initiation of ART in Early Asymptomatic HIV Infection
  - The INSIGHT START Study Group
  - Early ART led to HR of 0.43 for death, AIDS-related events, or serious non-AIDS-related events

### • 2015<sup>4</sup>

- A Trial of Early Antiretrovirals and Isoniazid Preventive Therapy in Africa<sup>4</sup>
  - Earlier ART resulted in HR of 0.56 for death or severe HIV-related illness

HR, hazard ratio; VS, virologically suppressed.

1. Cohen MS, et al. *N Engl J Med*. 2011;365(6):493-505; 2. Cohen MS, et al. *N Engl J Med*. 2016;375(9):830-839; 3. INSIGHT START Study Group. *N Engl J Med*. 2015;373(9):795-807; 4. TEMPRANO ANRS 12136 Study Group. *N Engl J Med*. 2015;373(9):808-822.

## Potential Barriers to Starting ART

### • Structural/systemic

- HIV testing/diagnosis occurs off-site; ie, referral to clinic
- Complex eligibility criteria for some clinics; eg, CD4 count, income, residence
- Access to medications without payer source
- Scheduling and provider availability

### • Provider/staff beliefs

- “That’s how we’ve always done it”
- Preparatory lab results must be known; ie, serum creatinine, hepatitis B and C serology, genotype

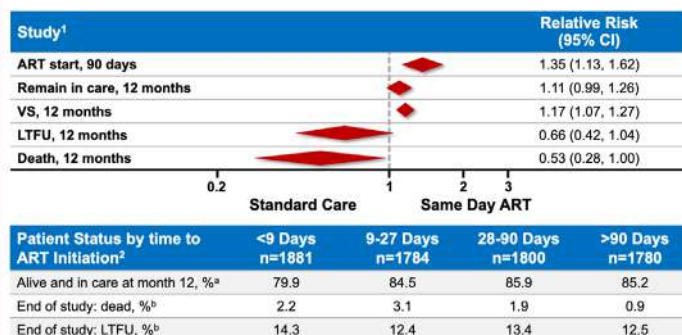
### • Patients’ readiness and psychosocial comorbidities

- Coping with HIV diagnosis
- Housing stability
- Food insecurity
- Mental illness
- Substance use



Colasanti J, et al. *Open Forum Infect Dis*. 2018;5(6):ofy104.

## Does Rapid ART Improve Retention in Care?



Meta-analysis of rapid ART in LMIC shows rapid ART:<sup>3</sup>

- Likely has greater viral suppression
- Has lower mortality
- May improve retention in care.

LMIC, low-middle income country; LTFU, lost to follow-up.

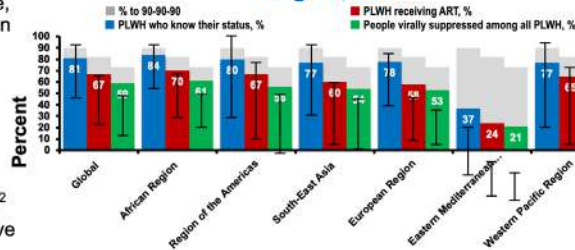
<sup>a</sup>P<0.0001; <sup>b</sup>P=0.002.

1. Ford N, et al. *AIDS*. 2018;32(1):17-23; 2. Cuzin L, et al. *PLoS One*. 2019;14(9):e0222067; 3. Mateo-Urdiales A, et al. *Cochrane Database Syst Rev*. 2019;6(6):CD012962.

## Do We Have Equity in HIV Care?

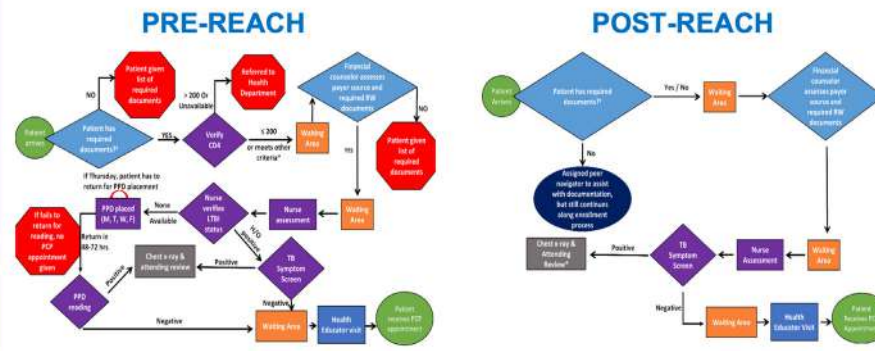
- In the US, Black patients have an increased rate of transmission and equivalent linkage to care, yet are less likely to receive an ART prescription<sup>1</sup>
- In Europe, inequity is driven by income and social protection (35%), living conditions (29%), violence/isolation/stigma (19%), access to health care (10%), and employment (7%)<sup>2</sup>
- Migrants and sex workers have reduced access to care<sup>3</sup>

**HIV Testing and Care Continuum by WHO Region, 2019<sup>4</sup>**



PLWH, people living with HIV; WHO, World Health Organization  
 1. Hoots BE, et al. *J Infect Dis*. 2017;216(7):808-812. 2. WHO. <https://www.euro.who.int/en/mediacentre/sections/press-releases/2019/progress-on-health-equity-is-stalling-across-europe-new-who-report-reveals-gaps-can-be-reduced-within-the-lifetime-of-a-single-government>. Accessed June 3, 2021; 3. UNAIDS. [https://www.unaids.org/sites/default/files/media\\_asset/2020\\_global-aids-report\\_en.pdf](https://www.unaids.org/sites/default/files/media_asset/2020_global-aids-report_en.pdf). Accessed June 3, 2021; 4. WHO. [https://www.who.int/docs/default-source/hiv-hq/latest-hiv-estimates-and-updates-on-hiv-policies-update-november2020.pdf?sfvrsn=10a0043d\\_12](https://www.who.int/docs/default-source/hiv-hq/latest-hiv-estimates-and-updates-on-hiv-policies-update-november2020.pdf?sfvrsn=10a0043d_12). Accessed June 3, 2021.

## Administrative Barriers REACH, Atlanta



LTBI, latent tuberculosis infection; HbA1c, history of; PPD, purified protein derivative; RW, Ryan White. Colasanti J, et al. *Open Forum Infect Dis*. 2018;5(6):ofy104.

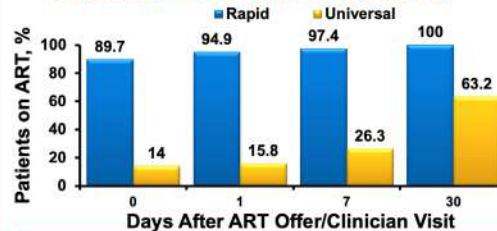
## San Francisco General Hospital RAPID Model



MH, mental health; PCP, primary care provider; SU, substance use; VL, viral load. Pilcher CD, et al. *J Acquir Immune Defic Syndr*. 2017;74(1):44-51.

## Rapid ART Works in the Face of Social Challenges

### RAPID Model in San Francisco<sup>1</sup>



### Key Sociodemographics<sup>1</sup>

|                               | RAPID<br>n=39 | Universal<br>n=47 |
|-------------------------------|---------------|-------------------|
| Homelessness                  | 11 (28%)      | 13 (25%)          |
| Uninsured                     | 39 (100%)     | 47 (100%)         |
| Illicit substance use         | 18 (46%)      | 18 (38%)          |
| Major mental health disorders | 21 (54%)      | 15 (32%)          |

In the Atlanta REACH cohort, the overwhelming majority were Black men in their mid 30s, and over half were uninsured with a median income of \$8800. Nearly half used substances and 26% had a mental health disorder. The median CD4 count was 146 cells/ $\mu$ L. These patients still benefited from the REACH program.<sup>2</sup>

<sup>1</sup>. Pilcher CD, et al. *J Acquir Immune Defic Syndr*. 2017;74(1):44-51; <sup>2</sup>. Colasanti J, et al. *Open Forum Infect Dis*. 2018;5(6):ofy104.

## INDIVIDUALIZING TREATMENT IN THE CONTEXT OF AGING AND COMORBIDITIES: CVD, CKD, and Metabolic Concerns

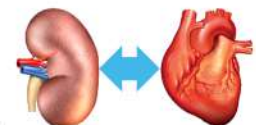
**Seble G. Kassaye, MD, MS**

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Infectious Disease Physician, Unity Health Care  
Washington, DC

## CVD and CKD Risk in HIV

- Increased rate of CVD among PLWH:<sup>1</sup>
  - Ischemic stroke among younger PLWH
  - MI among PLWH of all ages
- ASCVD partially caused by chronic inflammation and immune activation and higher prevalence of traditional risk factors in PLWH<sup>2</sup>
- PLWH are at increased risk for acute kidney injury and CKD through certain ART, uncontrolled HIV, and traditional risk factors<sup>3</sup>
- 2DR could be helpful in reducing risk for kidney impairment, weight gain, or cholesterol increase<sup>4</sup>

**Cardio-renal axis perpetuates risk**



ASCVD, atherosclerotic cardiovascular disease; CKD, chronic kidney disease.

<sup>1</sup>. Althoff KN, et al. *Clin Infect Dis*. 2015;60(4):627-638; <sup>2</sup>. Vachiat A, et al. *J Am Coll Cardiol*. 2017;69(1):73-82; <sup>3</sup>. Cohen SD, et al. *N Engl J Med*. 2017;377(24):2363-2374; <sup>4</sup>. DHHS. <https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv>. Accessed June 3, 2021.

## ART and Kidney Function

### TDF

#### - TDF Cautions

- Drug interactions: with boosted PIs – can affect renal function
  - Avoid concurrent cobicistat if CrCl <70 mL/min
- Host profile: older age, elevated creatinine, low body weight, concurrent nephrotoxic drugs
- Avoid if CrCl <60 mL/min; if used adjust dose if CrCl <50 mL/min

### TAF

#### - Prodrug - lower dose than TDF

- Lower plasma levels without compromising on intracellular levels
- Fewer renal events and less effect on BMD than TDF
- TAF cautions
  - TAF with boosted PIs inhibits intestinal P-glycoprotein and increases TAF
    - 10 mg with booster; 25 mg if given without booster
  - Weight gain (clear in naïve studies, less clear in switch studies)
  - Increased LDL-C, HDL-C, TG with TAF vs TDF
    - TC:HDL ratio unchanged
  - CrCl <30 mL/min not recommended unless on HD

BMD, bone mineral density; CrCl, creatinine clearance; HD, hemodialysis; HDL-C, high-density lipoprotein cholesterol; TG, triglycerides. DHHS. <https://clinicalinfo.hiv.gov/guidelines/adult-and-adolescent-arv/>. Accessed October 22, 2020.

## Drug-Drug Interactions

### CVD

| ART   | Effect on Lipids           | Interaction With Statins <sup>a</sup> | Effect on MI                |
|-------|----------------------------|---------------------------------------|-----------------------------|
| INSTI | RAL; DTG; BIC              | None <sup>1</sup>                     | No                          |
|       | EVG/c                      | None <sup>1</sup>                     | Yes <sup>a</sup>            |
| NRTI  | ABC                        | None <sup>1</sup>                     | No                          |
|       | TDF                        | ↓ TC, LDL-C, HDL-C, TG <sup>1</sup>   | No                          |
|       | TAF                        | ↑ TC, HDL-C, LDL-C, TG <sup>2</sup>   | No                          |
|       | 3TC & FTC                  | None <sup>1</sup>                     | No                          |
| NNRTI | EFV                        | ↑ TC, HDL-C, LDL-C, TG <sup>1</sup>   | Yes                         |
|       | RPV                        | ↑ TG <sup>3</sup>                     | No                          |
|       | DOR                        | None                                  | No                          |
| PI    | ATV/c <sup>5</sup> ; ATV/r | None <sup>1</sup>                     | Yes, with most <sup>6</sup> |
|       | DRV/r; DRV/c               | ↑ TC, TG, LDL-C <sup>4</sup>          | Yes, with most <sup>6</sup> |
|       | LPV/r                      | ↑ TC, TG, LDL-C <sup>1</sup>          | Yes, with most <sup>6</sup> |

ATV, atazanavir; EFV, efavirenz; EVG, elvitegravir.

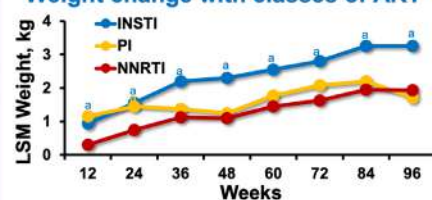
<sup>a</sup>Contraindicated with simvastatin, lovastatin, and lomitapide but no interactions with pitavastatin; <sup>1</sup>Lomitapide, lovastatin, and simvastatin contraindicated with PIs;

<sup>2</sup>Do not coadminister with atorvastatin.

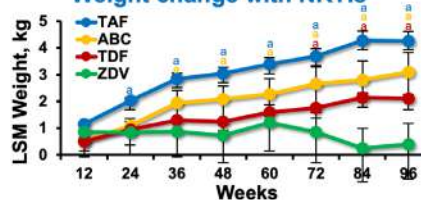
<sup>3</sup>Lagathu C, et al. *Expert Opin Drug Saf*. 2019;18(9):829-840; 4. Arribas JR, et al. *J Acquir Immune Defic Syndr*. 2017;75(2):211-218; 5. Molina JM, et al. *Lancet HIV*. 2018;5(7):e357-e365; 6. Eron JJ, et al. *Antiviral Res*. 2019;170:104543; 7. DHHS. <https://clinicalinfo.hiv.gov/guidelines/adult-and-adolescent-arv/>. Accessed June 23, 2021; 8. O'Halloran JA, et al. *J Acquir Immune Defic Syndr*. 2020;84(4):396-399; 9. Feinstein MJ, et al. *Circulation*. 2019;140(2):e98-e124; 10. Eyawo G, et al. *BMJ Open*. 2019;9(8):e025874; 11. Rym L, et al. *Lancet HIV*. 2018;5(6):e291-e300.

## Do ART Regimens Contribute to Weight Gain?

### Weight change with classes of ART



### Weight change with NRTIs



The largest risk factors for weight gain were CD4 count <200 cells/μL, no IV drug use, Black race, HIV RNA >100,000 copies/mL, and symptomatic HIV. Pooled analyses showed median weight gain was 2 kg; 49% had ≥3% and 17% had ≥10% increase vs baseline but 30% lost weight.

\*P<0.05.

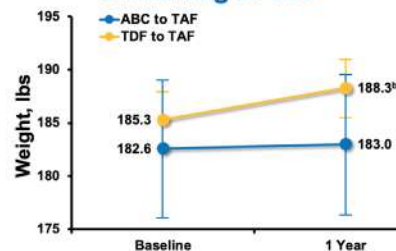
LSM, least squares mean; ZDV, zidovudine.

Meta-analysis of 8 phase 3 clinical trials for treatment-naïve patients with at least 96 weeks of follow-up (N=5680 treatment-naïve participants who initiated ART). Sax PE, et al. *Clin Infect Dis*. 2020;71(6):1379-1389.

## Weight Change When Switching ART Regimens

- Pooled clinical trial data show greater weight gain in those who switched ART regimens<sup>1</sup>
  - Greatest risk in switch from EFV to RPV or EVG/c and TDF to TAF
  - Younger age and lower BMI associated with any or  $\geq 10\%$  weight gain
- Higher proportion of patients who switched from TDF to TAF gained  $\geq 3\%$  of body weight vs those who switched from ABC to TAF<sup>2</sup>

### Estimated Mean Change in Weight 1 Year After Switching to TAF<sup>2,a</sup>



<sup>a</sup>N=970 treatment-experienced adults with HIV who switched from ABC to TAF or TDF to TAF were analyzed at 1 year post-switch in this retrospective observational study; <sup>b</sup>P=0.039.  
<sup>1</sup> Erlandson KM, et al. *Clin Infect Dis*. 2021. [Epub ahead of print]; <sup>2</sup> McCormey GA, et al. IDWeek virtual conference, 2020.

## Selected Ongoing Studies Investigating Weight According to ART Regimen

- In participants who gained weight on an INSTI-based regimen:
  - Switch from INSTI + TAF/FTC to DOR-based regimen<sup>1,2</sup>
  - Switch from INSTI + TAF/FTC to DRV/c/TAF/FTC<sup>3</sup>
  - Switch from DTG + TDF/3TC to DTG/3TC or DRV/TDF/3TC<sup>4</sup>
- Changes in weight and cardiac risk after discontinuing ABC<sup>5</sup>

<sup>1</sup> ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04636437>. Accessed June 3, 2021; <sup>2</sup> ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04665375>. Accessed June 3, 2021; <sup>3</sup> ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04442737>. Accessed June 3, 2021; <sup>4</sup> ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04903847>. Accessed June 3, 2021; <sup>5</sup> ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04904466>. Accessed June 3, 2021.

# THE TREATMENT-RESISTANT PATIENT

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## Strategies for Managing a Treatment-Resistant Patient

- Evaluate adherence, DDIs, food requirements, tolerability, ART history, and current and prior drug-resistance results
  - Can perform drug-resistance testing while the patient is taking their failing regimen or within 4 weeks after ART discontinuation
- Resistance mutations do not indicate that the patient is resistant to the entire regimen or even the entire class
  - Possibility of cross-resistance among ART in the same class
- Avoid adding a single agent to a failing regimen to decrease risk of resistance to all drugs in regimen
- Do not discontinue or interrupt therapy until a new regimen has been selected

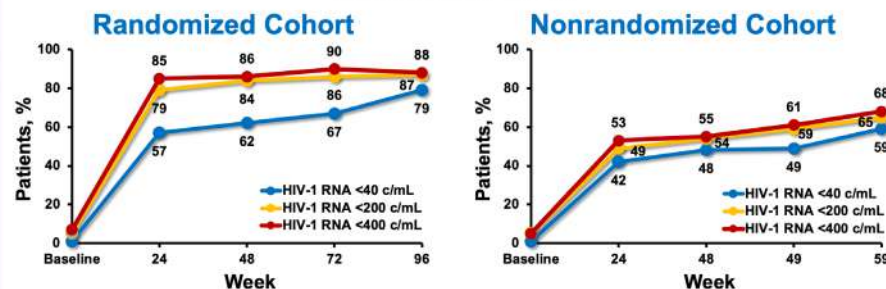
DHHS. <https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv/virologic-failure?view=full>. Accessed May 26, 2021.

## Strategies for Managing a Treatment-Resistant Patient

- If a patient does not have the option for 2 fully active agents, including  $\geq 1$  with a high resistance barrier, select a regimen that:
  - Minimizes toxicity and development of future resistance
  - Preserves immunologic function
  - Delays progression
  - Or consider a clinical trial
- If the patient has limited information about ART or resistance history:
  - Consider restarting the most recent ART regimen and assessing drug resistance
  - Start a regimen that is likely to be active based on treatment history
  - If no history is available, consider agents with high barrier to resistance

DHHS. <https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv/virologic-failure?view=full>. Accessed June 26, 2021.

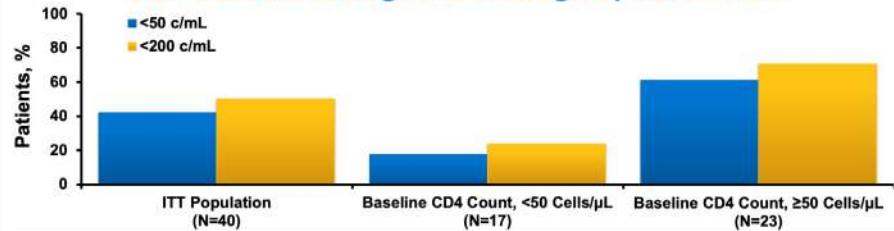
## Efficacy and Safety of Fostemsavir in HTE Patients BRIGHT Trial



N=371 HTE adults with HIV (10%-15%) or AIDS (85%-90%) for whom therapy was failing were assigned to 2 cohorts, 1 of which (n=272) randomly assigned patients with 1 or 2 fully active antiretrovirals remaining to fostemsavir 600 mg twice daily or placebo in combination with their failing regimen for 8 days, followed by fostemsavir plus optimized background ART. The other cohort (n=99), which comprised patients without remaining ART options, received fostemsavir 600 mg twice daily + optimized background ART from day 1. Latallade M, et al. *Lancet HIV*. 2020;7(11):e740-e751.

## Efficacy and Safety of Ibalizumab in HTE Patients

### Viral Load According to CD4 Subgroup at Baseline



**Ibalizumab is a humanized IgG4 mAb that binds noncompetitively to CD4 (postattachment inhibitor)**

IgG, immunoglobulin.  
N=40 adults with multidrug-resistant HIV (documented resistance to ≥1 drug in ≥3 classes) and HIV RNA >1000 c/mL received a loading dose of 2000 mg ibalizumab intravenously (IV) followed by a maintenance period of 25 weeks, during which ibalizumab 800 mg was administered every 14 days combined with optimized background ART that had at least 1 fully active agent.  
Emu B, et al. *N Engl J Med*. 2018;379(7):645-654.

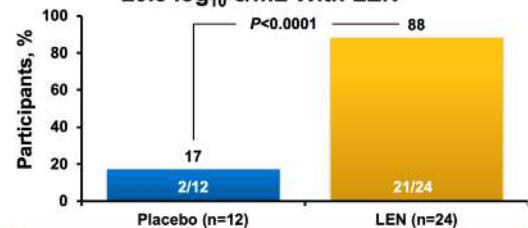
## Emerging Options for HTE Patients

### Islatravir

- ISL/DOR phase 3 trial ongoing<sup>1</sup>
  - Assessing ISL, DOR, and ISL/DOR combination, all in combination with failing ART regimen from day 1 – 7
  - Followed by open-label ISL/DOR + optimized background therapy

### Lenacapavir

#### Patients Achieving HIV RNA Decline ≥0.5 log<sub>10</sub> c/mL With LEN<sup>2,a</sup>



**Significant change in viral load with LEN vs placebo**

<sup>a</sup>Mean baseline VL was 4.27 log<sub>10</sub> c/mL.  
<sup>1</sup> ClinicalTrials.gov. <https://clinicaltrials.gov/ct2/show/NCT04233216>. Accessed June 3, 2021; 2. Segal-Maurer S, et al. CROI. March 6-10, 2021; virtual conference. Abstract 127.

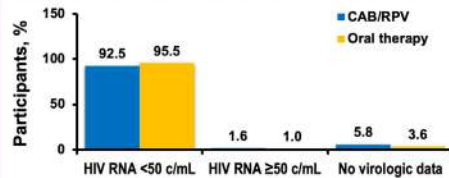
# LONG-ACTING VS ORAL ADMINISTRATION

**Eric S. Daar, MD**

Chief, Division of HIV Medicine, Harbor-UCLA Medical Center  
Investigator, Lundquist Institute for Biomedical Innovation  
Professor of Medicine, David Geffen School of Medicine, University of California, Los Angeles  
Los Angeles, California

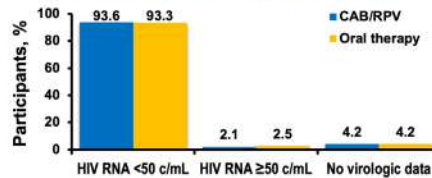
## Long-Acting CAB/RPV vs Oral ART in Treatment-Experienced and Treatment-Naïve Patients

LA CAB/RPV is noninferior to oral ART at 48 weeks in treatment-experienced patients<sup>1,a</sup>



Injection site reactions were seen in 81% of CAB/RPV group and decreased to 11% at week 48

LA CAB/RPV is noninferior to oral ART at 48 weeks in treatment-naïve patients<sup>2,b</sup>



Injection site reactions were seen in 86% of CAB/RPV group and decreased to 20% at week 48

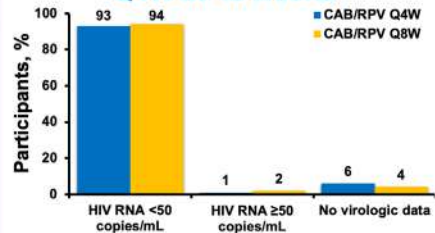
<sup>a</sup>N=618 adults with HIV who were virally suppressed for 26 months on standard oral ART regimens were randomly assigned to continue their current regimen or switch to oral CAB/RPV for 4 weeks followed by monthly IM injections of long-acting CAB/RPV for 52 weeks. <sup>b</sup>N=616 adults with HIV who had not previously received ART were given 20 weeks of DTG/ABC/3TC. Those who had HIV RNA <50 copies/mL after 16 weeks were randomly assigned to continue their current regimen or switch to oral CAB/RPV for 4 weeks followed by monthly IM injections of long-acting CAB/RPV for 48 weeks.

1. Swindells S, et al. *N Engl J Med*. 2020;382(12):1112-1123; 2. Orkin C, et al. *N Engl J Med*. 2020;382(12):1124-1135.

## Long-Acting CAB/RPV Injection Q4W vs Q8W in Treatment-Experienced Patients

ATLAS-2M

CAB/RPV Q8W is noninferior to Q4W at 48 weeks



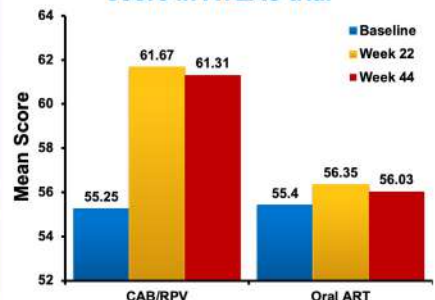
- Injection site reactions were rated as mild-to-moderate by 98% of participants experiencing them
- Median duration of 3 days

N=1045 adults with HIV who were virally suppressed and participated in the ATLAS study (rollover) or who were taking standard oral ART regimens were randomly assigned to Q4W or Q8W of CAB/RPV and followed for 48 weeks.

Overton ET, et al. *Lancet*. 2021;396(10267):1994-2005.

## Patient Preference for LA Injectable Therapy

Change in total treatment satisfaction score in ATLAS trial<sup>1</sup>



ART preference in patients without Q4W experience (N=306)<sup>2</sup>



ART preference in patients with Q4W experience (N=191)<sup>2</sup>



1. Swindells S, et al. *N Engl J Med*. 2020;382(12):1112-1123; 2. Chounta V, et al. *Patient*. 2021. [Epub ahead of print].

## Considerations With LA ART

### • Pros

- Less frequent dosing<sup>1</sup>
- Fewer AEs<sup>1</sup>
- Fewer DDIs<sup>1</sup>
- No pill burden<sup>1</sup>
- High bioavailability<sup>1</sup>
- Reduce stigma associated with taking pills daily<sup>2</sup>
- Increased adherence?<sup>1</sup>

### • Cons

- Pharmacokinetic tail may be a concern for:<sup>1,3</sup>
  - Pregnancy/postpartum
  - Emerging resistance
  - Patients who miss visits
- Must be combined with oral regimen in HBV<sup>4</sup>
- Weight gain<sup>5</sup>
- Complicated criteria to resume injections if patient is nonadherent<sup>6</sup>
- Risk of virologic failure, particularly with nonadherence<sup>1</sup>
- Consider baseline RAMs<sup>7</sup>

AE, adverse event; RAM, resistance-associated mutation.

1. Chaudhary K, et al. *Crit Rev Ther Drug Carrier Syst*. 2019;36(2):137-181; 2. D'Amico R, Margolis DA. *Curr Opin HIV AIDS*. 2020;15(1):13-18; 3. Patel P, et al. CROI. March 8-11, 2020; virtual conference. Abstract 775; 4. DHHS. <https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv/hhs-adult-and-adolescent-antiretroviral-guidelines-panel>. Accessed May 26, 2021; 5. Patel P, et al. CROI. March 6-10, 2021; virtual conference. Abstract 505; 6. Viiv. [https://viivhealthcare.com/content/dam/cf-viiv/viiv-healthcare/en\\_GB/medicines/CABENUVA-VOCABRIA-PM-26-Mar-2021.pdf](https://viivhealthcare.com/content/dam/cf-viiv/viiv-healthcare/en_GB/medicines/CABENUVA-VOCABRIA-PM-26-Mar-2021.pdf). Accessed May 26, 2021; 7. Jaeger H, et al. CROI. March 6-10, 2021; virtual conference. Abstract 401.

## Conclusions

- There have been multiple advances in recent years both in treatment strategy and ART regimens
  - High barrier to resistance
  - No lab requirements with most initial ART regimens
- Several rapid ART clinic models provide examples of how to incorporate wraparound services and refer patients to other providers
- It's important to tailor ART regimens in aging patients based on comorbidities, drug-drug interactions, and patient preference
- There are multiple recently approved therapies and emerging therapies for HTE patients
- Clinicians must weigh optimal patient selection and implementation strategies for recently approved LA therapies

## CLINICAL PRACTICE GUIDELINES

- » **Antiretroviral drugs for treatment and prevention of HIV infection in adults: 2020 recommendations of the International Antiviral Society–USA panel.**

Saag MS, Gandhi RT, Hoy JF, et al. *JAMA*.

2020;324(16):1651-1669.

<https://jamanetwork.com/journals/jama/fullarticle/2771873>

- » **Guidelines for the use of antiretroviral agents in adults and adolescents living with HIV.**

US Department of Health and Human Services

<https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv/>

- » **Guidelines for Managing Advanced HIV Disease and Rapid Initiation of Antiretroviral Therapy.**

World Health Organization

<https://apps.who.int/iris/bitstream/handle/10665/255884/9789241550062-eng.pdf;jsessionid=C83F9B29B701AEA39463F030E60A349F?sequence=1>

## PATIENT AND CAREGIVER RESOURCES

- » **AIDSMap Resources**

NAM Publications

<https://www.aidsmap.com/about-hiv>

- » **Resources for persons living with HIV**

Centers for Disease Control and Prevention

<https://www.cdc.gov/hiv/basics/livingwithhiv/resources.html>

- » **HIV resources**

National Institutes of Health

<https://www.oar.nih.gov/hiv-resources/public>

## SUGGESTED READINGS

- » **Brief report: randomized, double-blind comparison of tenofovir alafenamide (TAF) vs tenofovir disoproxil fumarate (TDF), each coformulated with elvitegravir, cobicistat, and emtricitabine (E/C/F) for initial HIV-1 treatment: week 144 results.**

Arribas JR, Thompson M, Sax PE, et al. *J Acquir Immune Defic Syndr*. 2017;75(2):211-218.

[https://journals.lww.com/jaids/Fulltext/2017/06010/Brief\\_Report\\_Randomized\\_Double\\_Blind\\_Comparison.10.aspx](https://journals.lww.com/jaids/Fulltext/2017/06010/Brief_Report_Randomized_Double_Blind_Comparison.10.aspx)

- » **Implementation of a rapid entry program decreases time to viral suppression among vulnerable persons living with HIV in the southern United States.**

Colasanti J, Sumitani J, Mehta CC, et al. *Open Forum Infect Dis*. 2018;5(6):ofy104.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6022569/>

- » **Too fast to stay on track? Shorter time to first anti-retroviral regimen is not associated with better retention in care in the French Dat'AIDS cohort.**

Cuzin L, Cotte L, Delpierre C, et al. *PLoS One*.

2019;14(9):e0222067.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6730866/>

- » **Phase 3 study of ibalizumab for multidrug-resistant HIV-1.**

Emu B, Fessel J, Schrader S, et al. *N Engl J Med*.

2018;379(7):645-654.

[https://www.nejm.org/doi/10.1056/NEJMoa1711460?url\\_ver=Z39.88-2003&rft\\_id=ori%3Arid%3Acrossref.org&rft\\_dat=cr\\_\\_pub++0www.ncbi.nlm.nih.gov](https://www.nejm.org/doi/10.1056/NEJMoa1711460?url_ver=Z39.88-2003&rft_id=ori%3Arid%3Acrossref.org&rft_dat=cr__pub++0www.ncbi.nlm.nih.gov)

- » **Characteristics, prevention, and management of cardiovascular disease in people living with HIV: a scientific statement from the American Heart Association.**

Feinstein MJ, Hsue PY, Benjamin LA, et al. *Circulation*.

2019;140(2):e98-e124.

[https://www.ahajournals.org/doi/10.1161/CIR.0000000000000695?url\\_ver=Z39.88-2003&rft\\_id=ori:rid:crossref.org&rft\\_dat=cr\\_\\_pub%20%20pubmed](https://www.ahajournals.org/doi/10.1161/CIR.0000000000000695?url_ver=Z39.88-2003&rft_id=ori:rid:crossref.org&rft_dat=cr__pub%20%20pubmed)

- » **Cabotegravir and rilpivirine PK following long-acting HIV treatment discontinuation.**

Ford S, Crauwels H, Han K, et al. CROI. Virtual Meeting. March 8-11, 2020. Abstract 466.

<https://www.croiconference.org/abstract/cabotegravir-and-rilpivirine-pk-following-long-acting-hiv-treatment-discontinuation/>

- » **Linkage and antiretroviral therapy within 72 hours at a Federally Qualified Health Center in New Orleans.**

Halperin J, Butler I, Conner K, et al. *AIDS Patient Care STDS*.

2018;32(2):39-41.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5808385/>

- » **Metabolic complications affecting adipose tissue, lipid and glucose metabolism associated with HIV antiretroviral treatment.**

Lagathu C, Béréziat V, Gorwood J, et al. *Expert Opin Drug Saf*.

2019;18(9):829-840.

<https://www.tandfonline.com/doi/full/10.1080/14740338.2019.1644317>

- » **Safety and efficacy of the HIV-1 attachment inhibitor prodrug fostemsavir in heavily treatment-experienced individuals: week 96 results of the phase 3 BRIGHT study.**

Lataillade M, Lalezari JP, Kozal M, et al. *Lancet HIV*.

2020;7(11):e740-e751.

[https://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018\(20\)30240-X/fulltext](https://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018(20)30240-X/fulltext)

## NOTES

» **Rapid initiation of antiretroviral therapy for people living with HIV.**

Mateo-Urdiales A, Johnson S, Smith R, et al. *Cochrane Database Syst Rev*. 2019;6(6):CD012962.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6575156/>

» **Long-acting cabotegravir and rilpivirine after oral induction for HIV-1 infection.**

Orkin C, Arasteh K, Górgolas Hernández-Mora M, et al. *N Engl J Med*. 2020;382(12):1124-1135.

[https://www.nejri.org/doi/10.1056/NEJMoa1909512?url\\_ver=Z39.88-2003&rfr\\_id=ori:rid:crossref.org&rfr\\_dat=cr\\_pub%20%20pubmed](https://www.nejri.org/doi/10.1056/NEJMoa1909512?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%20pubmed)

» **The effect of same-day observed initiation of antiretroviral therapy on HIV viral load and treatment outcomes in a US public health setting.**

Pilcher CD, Ospina-Norvell C, Dasgupta A, et al. *J Acquir Immune Defic Syndr*. 2017;74(1):44-51.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5140684/>

» **2019 update of the European AIDS Clinical Society Guidelines for treatment of people living with HIV version 10.0.**

Ryom L, Cotter A, De Miguel R, et al. *HIV Med.* 2020;21(10):617-624.

<https://onlinelibrary.wiley.com/doi/10.1111/hiv.12878>

» **Weight gain following initiation of antiretroviral therapy: risk factors in randomized comparative clinical trials.**

Sax PE, Erlandson KM, Lake JE, et al. *Clin Infect Dis*. 2020;71(6):1379-1389.

<https://academic.oup.com/cid/article/71/6/1379/5586728>

» **Potent antiviral activity of lenacapavir in phase 2/3 in heavily ART-experienced PWH.**

Segal-Maurer S, Castagna A, Berhe M, et al. CROI. March 6-10, 2021; Virtual Conference. Abstract 127.

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## Honing Clinical Skills in HIV Treatment: Considering the Patient, the Provider & the Science

## NOTES

[illegible]





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