

# HIV Screening, Diagnosis, and Rapid Antiretroviral Therapy Start

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# Disclosure Information

- ◆ Kento Sonoda, MD, AAHIVS
  - ◆ No Disclosures
- ◆ Amy J. Kennedy, MD, MS, AAHIVS
  - ◆ No Disclosures
- ◆ Julie Childers, MD, FASAM
  - ◆ No Disclosures

# Learning Objectives

1. Apply HIV screening tests into clinical practice
2. Interpret HIV diagnostic test results
3. Identify resources for starting ART immediately after the diagnosis of HIV

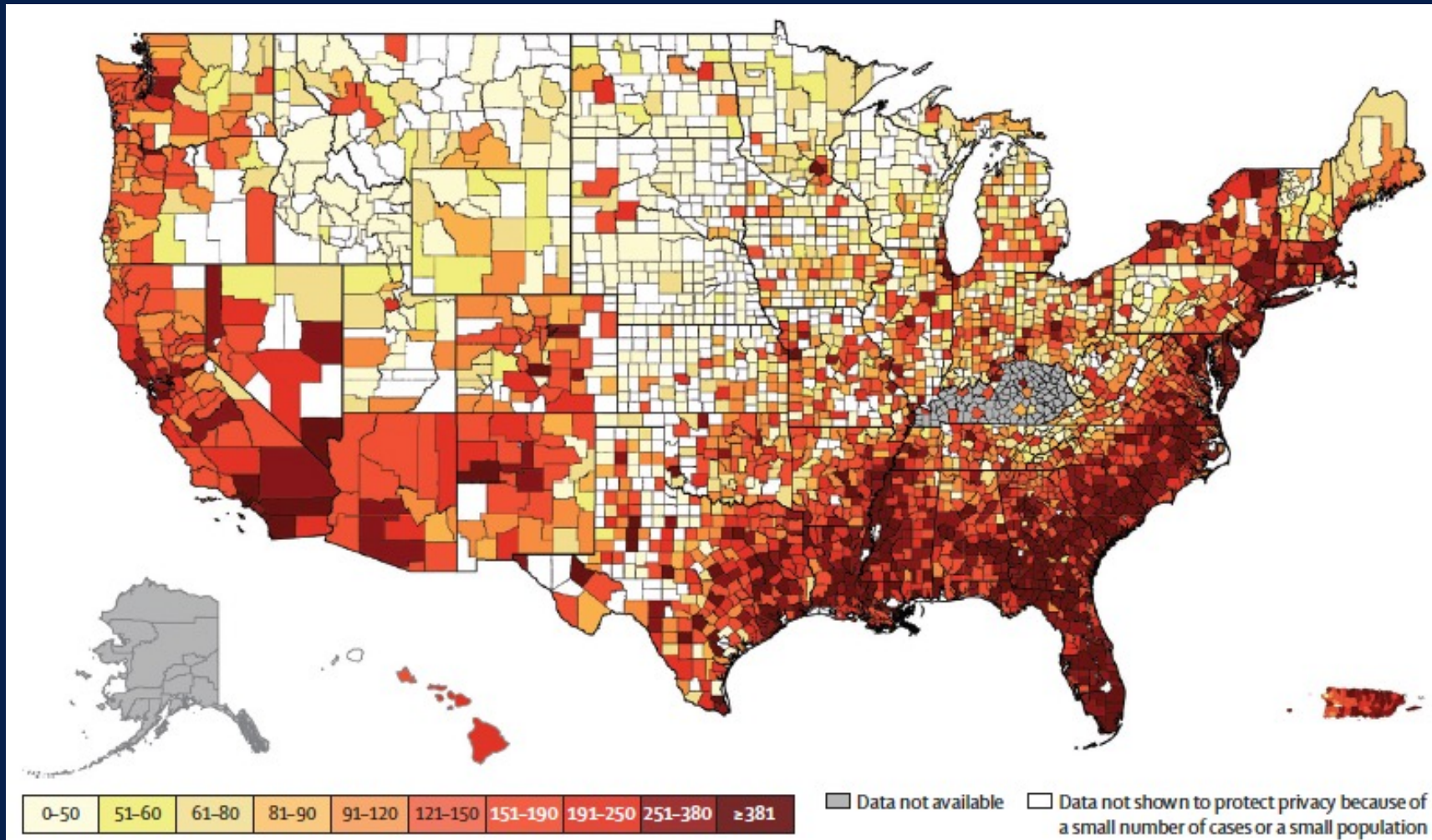
# Target Audience

- ◆ Addiction medicine clinicians in the community setting
- ◆ Limited access to HIV specialists
- ◆ Introductory level

# Epidemiology

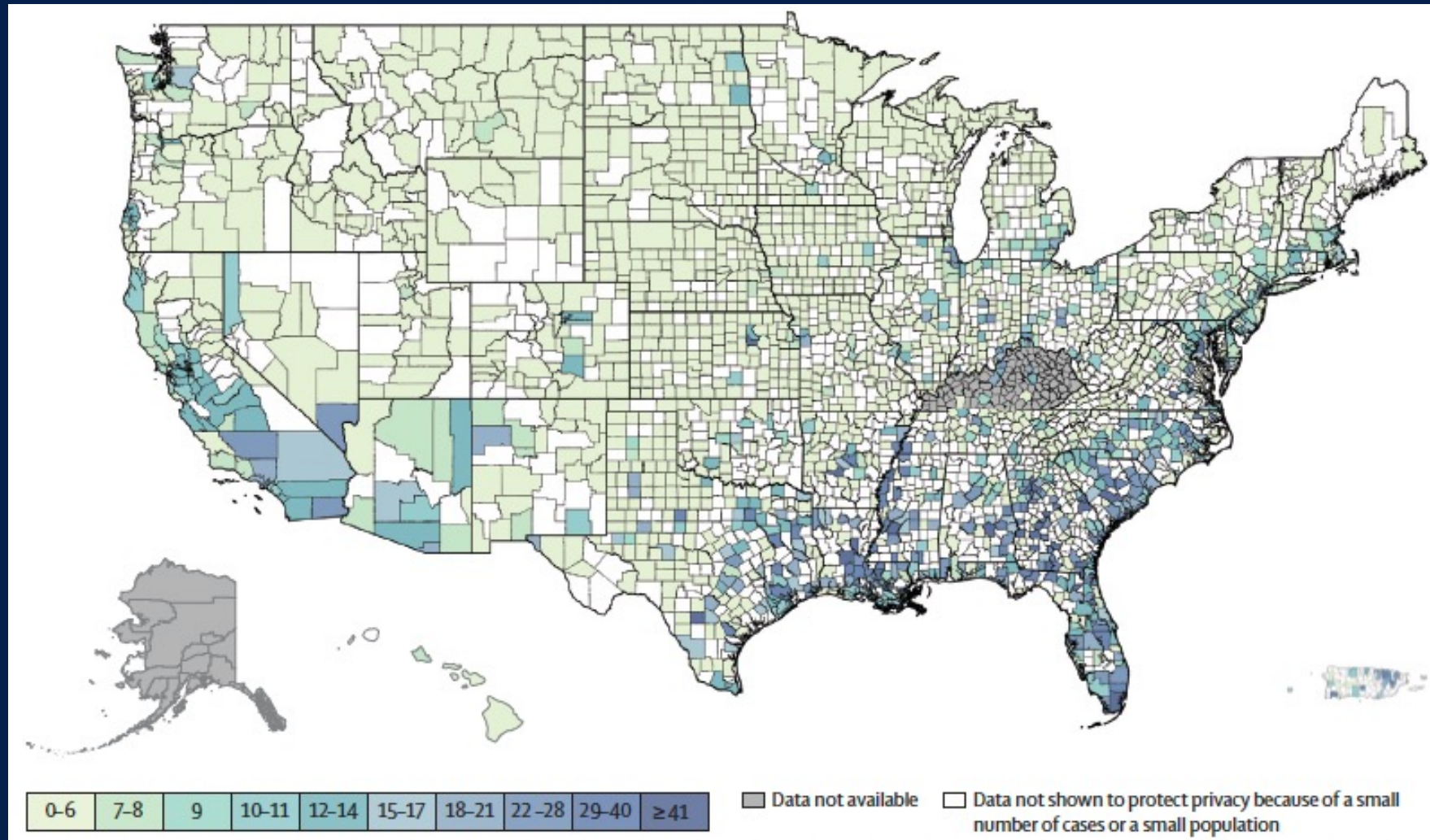
- ◆ More than 1.2 M people living with HIV in the U.S.
  - ◆ 159 K (13%) unaware of HIV infection
- ◆ New HIV infections (2019): 37 K
  - ◆ Age group – highest among people aged 25 to 34 (36%)
  - ◆ PWID: 7% of the new HIV diagnoses
- ◆ Estimated prevalence of HIV infection among PWID: 1.9%

# HIV prevalence by county



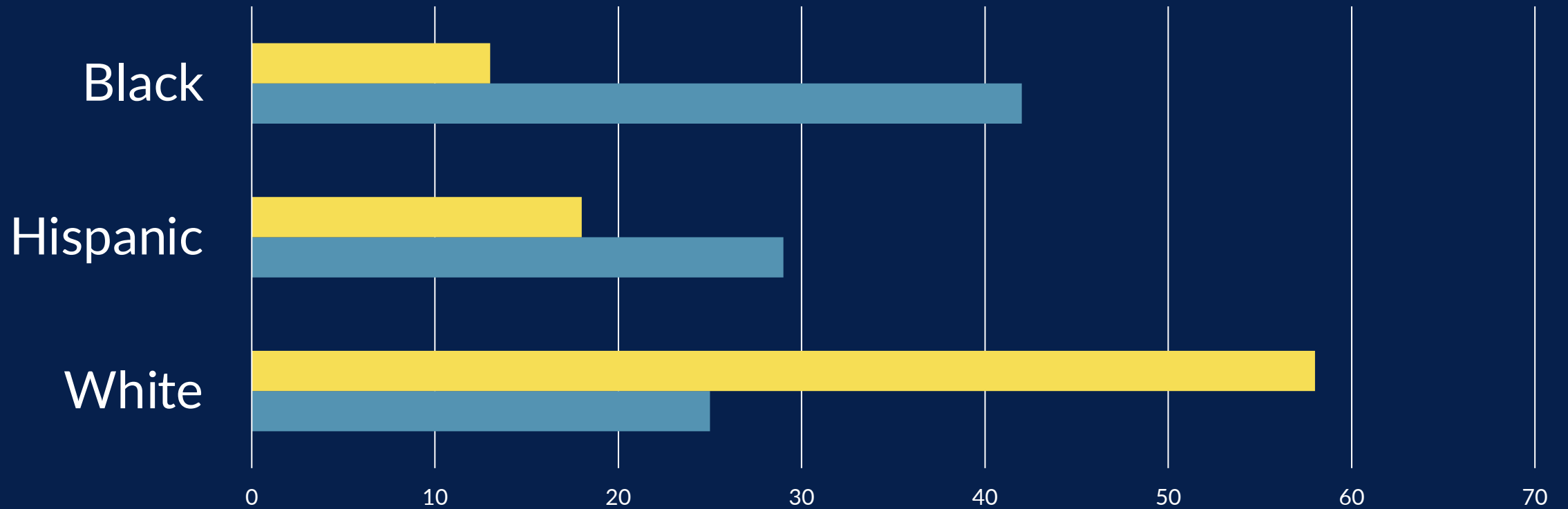


# New HIV diagnoses by county



# New HIV Diagnoses (2019)

- Population (%)
- HIV Diagnoses (%)



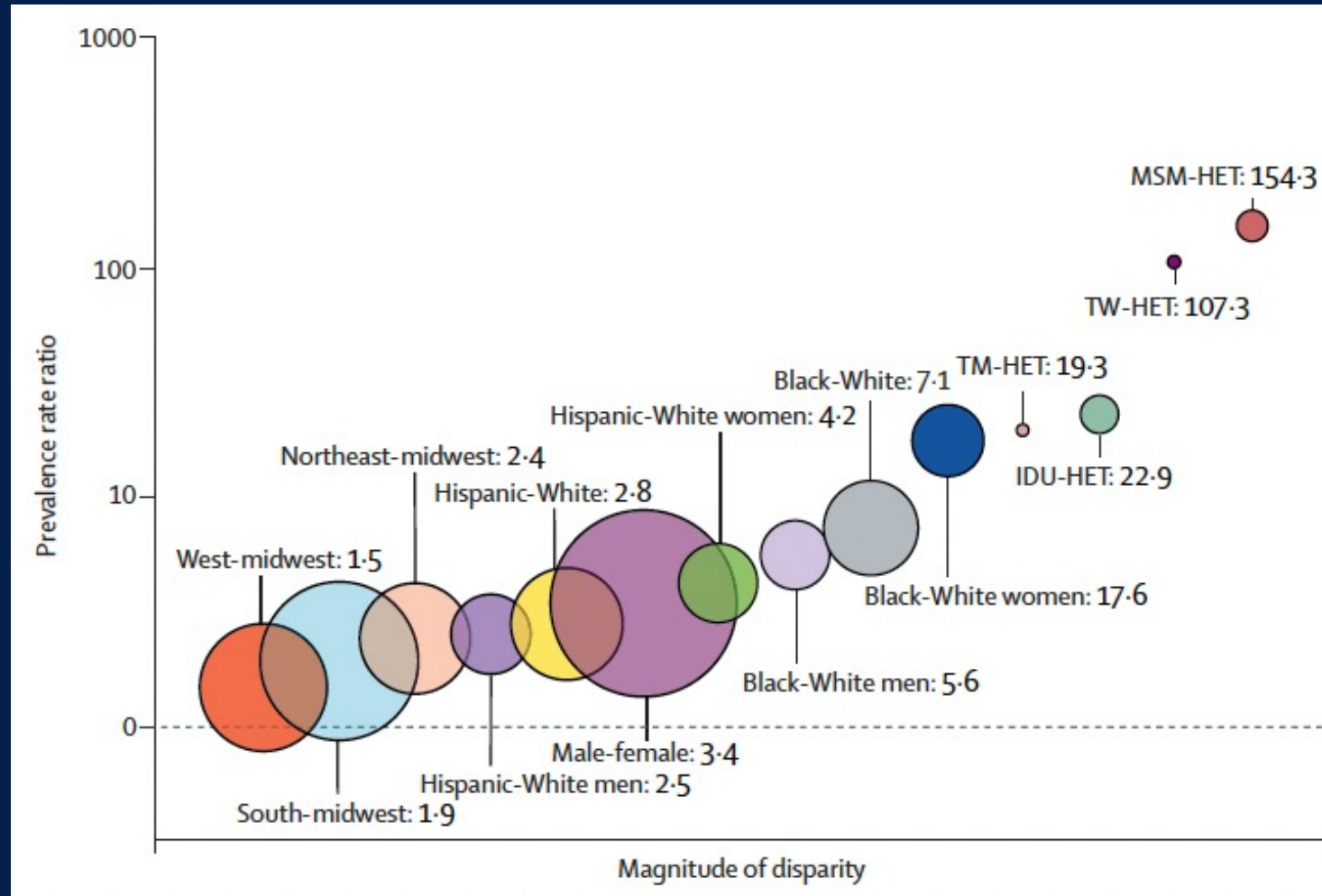
CDC. HIV Surveillance Report 2019; vol.32. Published May 2021.

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# Disparities in HIV prevalence

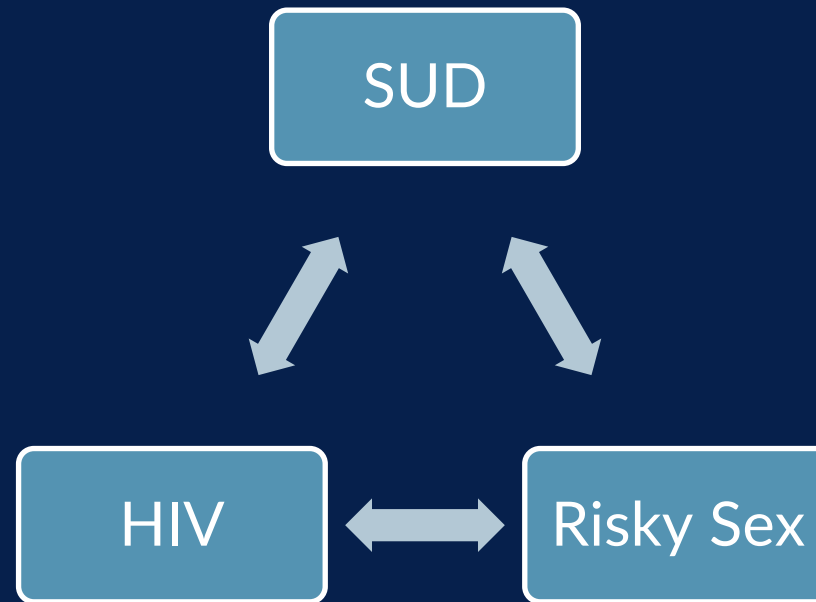


HET: heterosexual  
 IDU: injection drug user  
 TM: transgender men  
 TW: transgender women



# Epidemiology

- ◆ Estimated prevalence of HIV infection among PWID: 1.9%
- ◆ Unprotected sex: more common in PWID



# Care Continuum

## HIV CARE CONTINUUM:

The steps that people with HIV take from diagnosis to achieving and maintaining viral suppression.



# HIV Screening (Recommendation)

## USPSTF:

- ◆ Routine, voluntary HIV screening
- ◆ All people aged 15 to 65 years (including all pregnant persons)
- ◆ Insufficient evidence to determine optional intervals

## CDC:

- ◆ Persons at increased risk: at least annually
  - PWID, Persons who exchange sex for money or drugs
  - MSM, heterosexual persons with multiple sexual partners



USPSTF. HIV Infection: Screening. Published June 11, 2019.

Branson BM, et al. Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings. MMWR. September 22, 2006.

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# Consider Repeat HIV Screening

- ◆ Anyone who has been sexually active or is sharing needles
- ◆ Anyone with sexually transmitted infections
- ◆ Anyone with certain medical conditions
  - ◆ Pneumococcal pneumonia, tuberculosis
  - ◆ Abnormal PAP smear, thrush, recent vaginal candidiasis
  - ◆ New onset of psoriasis and seborrheic dermatitis
  - ◆ Immune thrombocytopenia, pancytopenia, lymphoma
  - ◆ HBcAb+, HCAb+

# Rational for HIV Screening

- ◆ 75% of pts newly diagnosed w/ AIDS: 4 visits in prior 5 years
  - ◆ Time from HIV infection to AIDS: > 5 years
- ◆ 60% of pts diagnosed with HIV: no identified risk/encouterDx
  - ◆ By risk (MSM, IVDU) only 34% could have been identified



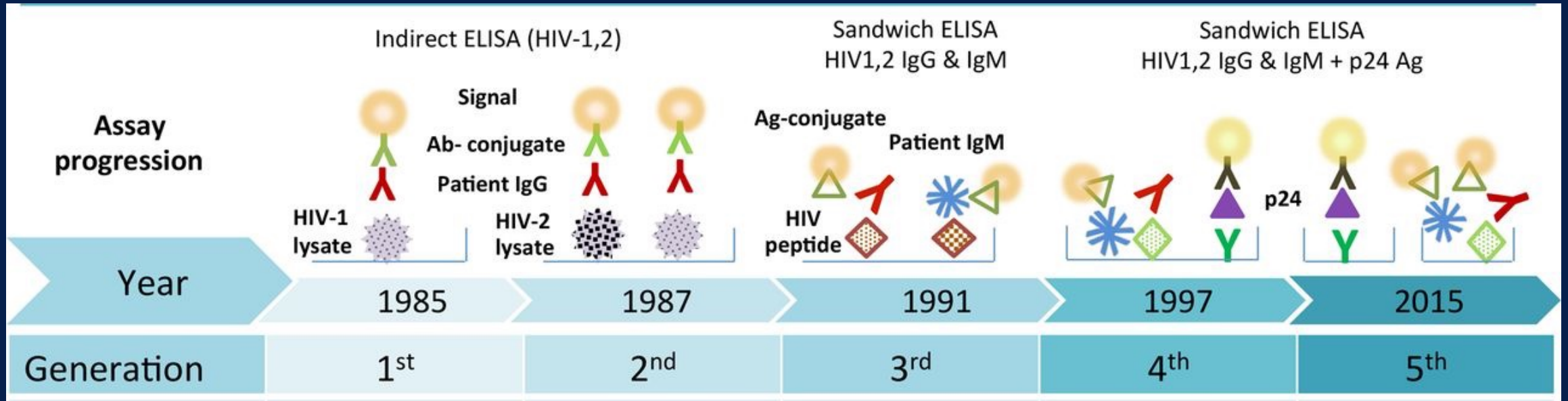
# Case 1

A 30-year-old male is here for follow-up. He was evaluated for mild fever, sore throat, myalgia, and fatigue a week ago. HIV 5th generation test: p24 (+) and HIV 1/2 Ab (-).

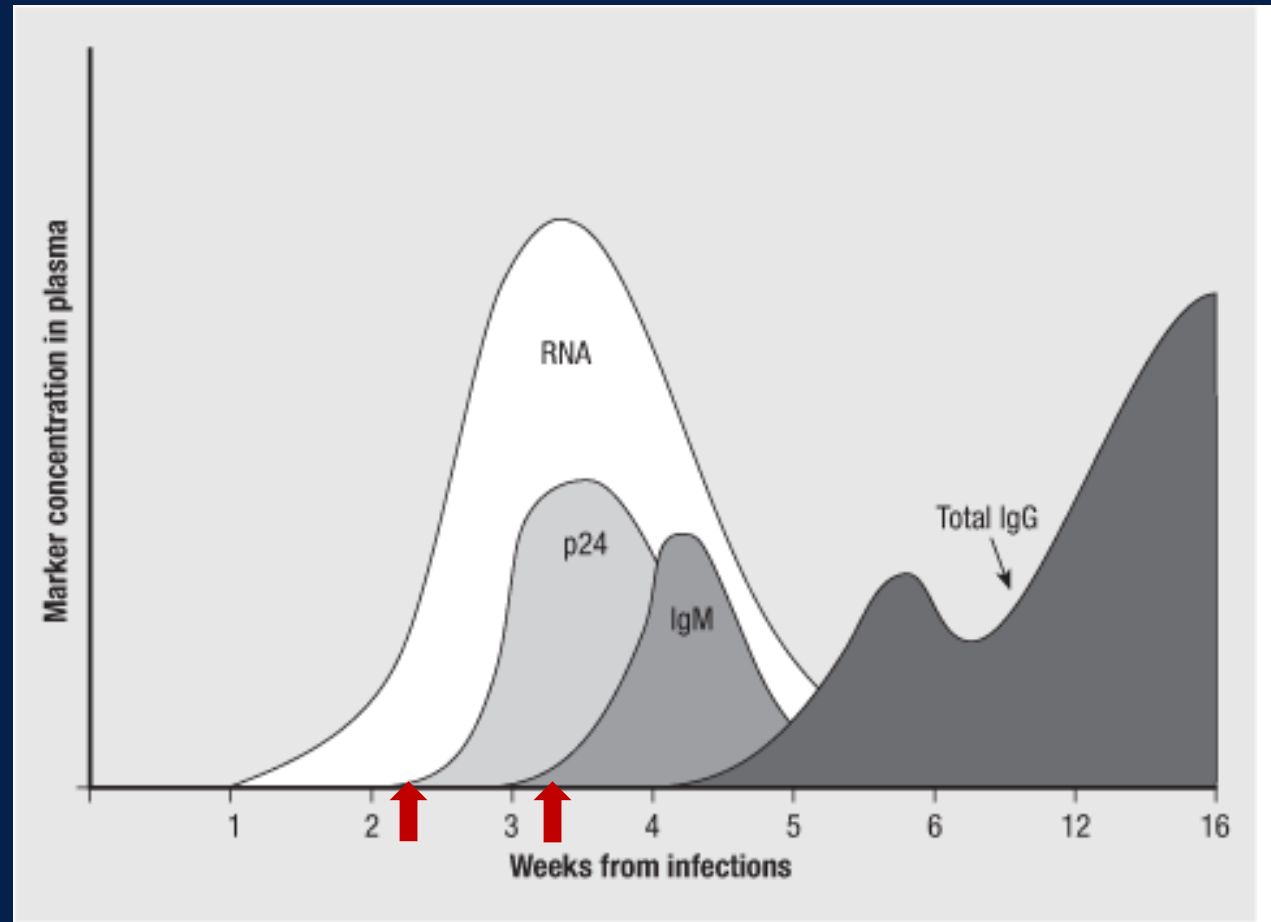
- ◆ Which of the following is the most appropriate next step?
  1. HIV Viral Load and Treat
  2. No further testing
  3. T-cell subset testing
  4. Western Blot HIV-1 Ab testing
  5. POC HIV testing



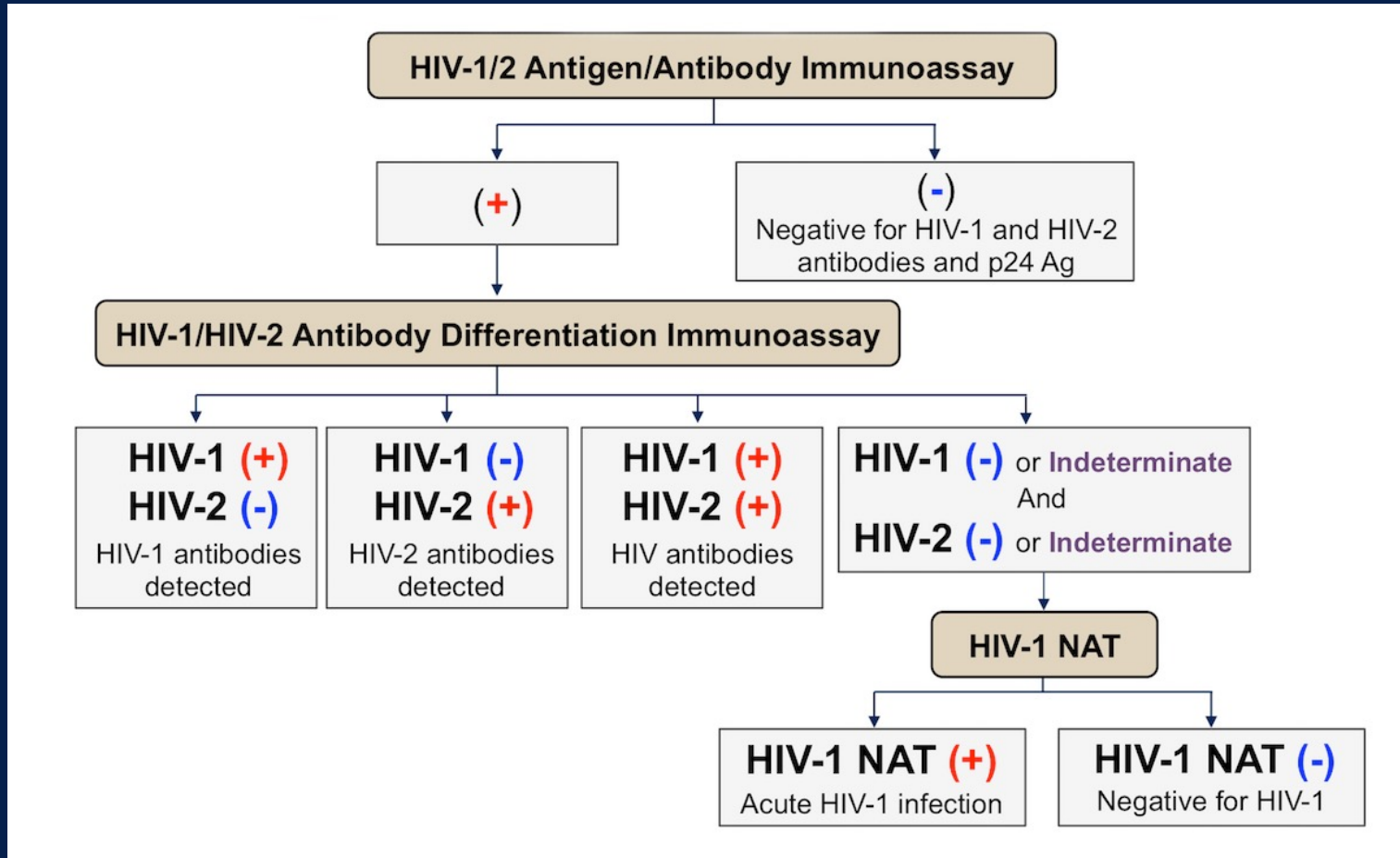
# HIV Serologic Tests



# Markers in Acute HIV Infection



# CDC Algorithm (4<sup>th</sup> Generation)



# Interpretation and Plan (5<sup>th</sup> Generation)

- ◆ Acute infection (window 2 weeks) and chronic infection

Result	Interpretation	Plan
p24(-) HIV1/2 Ab(-)	HIV(-)	No further testing
p24(+) HIV1/2 Ab(-)	Acute infection	Viral load, Tx
p24(-) HIV1 Ab(+)	Chronic infection	Viral load, CD4, Tx
p24(-) HIV2 Ab(+)	Chronic infection	Refer to ID

# Discussion

- ◆ You saw a 28-year-old male through telemedicine 2 days ago. You ordered HIV 5th generation screening test, which showed HIV-1 infection.
- ◆ How do you deliver the news of HIV diagnosis?

# Delivering Test Results

- ◆ In a private area & In a direct, neutral tone
- ◆ If negative, provide HIV prevention counseling (ie PrEP)
- ◆ If positive,
  - Patient education
  - Linkage to Care HIV (scheduling a follow-up appointment)
  - Partner notification requirement: depends on states (sexual partner, needle sharing partner)



# Case 2

- ◆ Jared is a 28 yo man with hx of opioid and methamphetamine use disorders. He uses via both injection and smoke/oral routes. He presents to clinic today to get started on buprenorphine-naloxone for his OUD.
- ◆ As part of your routine initial exam you order a CMP, HIV, HCV, and STI testing.
- ◆ 24 hours later you review his results and his HIV test is positive (5<sup>th</sup> generation test, p24 negative, HIV 1 antibody positive)



# What is your next step?

- A) Repeat HIV screening test
- B) Check HIV viral load
- C) Refer to an HIV/infectious disease specialist
- D) Start patient on antiretroviral medication (ART) now

# Case 2

- ◆ There are no infectious disease specialists in your area.
- ◆ You call Jared and ask him to come in to discuss lab results. You call the lab and add on a HIV viral load and CD4 count.
- ◆ Viral load comes back with 10,000 copies/ml
- ◆ CD4 comes back at 550 cells/dl

# When do we start ART?

- 1) Acute HIV
- 2) CD4 < 200 cells/dl
- 3) CD4 < 500 cells/dl
- 4) CD4 > 500 cells/dl
- 5) All of the Above

# ART “Rapid Start”

**Day 1**

New HIV Diagnosis



**Days 1-7**

Follow RIA protocol

Obtain Baseline Bloodwork

Focused Medical/Psychological Evaluation

Prescribe ART

First HIV Primary Care Visit

# Current Recommendations for Same-Day ART Initiation

- Rapid start or initiating ART on same day as HIV is diagnosed is an emerging strategy to **reduce loss to follow-up and decrease time to viral suppression**
- Evidence base limited but growing, and outcomes favorable thus far

DHHS <sup>[1]</sup>	WHO <sup>[2]</sup>	IAS-USA <sup>[3]</sup>
<ul style="list-style-type: none"><li>▪ <b>Recommended</b> at time of diagnosis (when possible) or soon afterward<ul style="list-style-type: none"><li>– Resource intensive</li><li>– US experience from observational trials</li></ul></li></ul>	<ul style="list-style-type: none"><li>▪ <b>Recommended</b> for all PWH, including same day, if patient is ready*</li></ul>	<ul style="list-style-type: none"><li>▪ Start ART as soon as possible, <b>including immediately after diagnosis</b>, if patient is ready</li></ul>

\*Rapid initiation defined as within 7 days of diagnosis. Priority should be given to patients with advanced disease.



# Why do we start ART early?

1. ART substantially reduces HIV transmission (by >95%)



2. Survival benefit with initiation of ART, even at CD4 count >500

# Why do we start ART early?

3. ART regimens are effective, safe, convenient (1 pill/day), and well tolerated

4. People with HIV have higher levels of inflammation and endothelial dysfunction which improves with ART



# Initial Lab Work-Up

## HIV Tests

- ◆ Repeat HIV screen (if first screen done outside system)
- ◆ HIV Viral Load
- ◆ CD4 Count
- ◆ HIV Genotype (integrase only if concern for resistance\*)

## Basic Labs

- ◆ CBC, CMP, UA
- ◆ A1c, Lipids

## Co-occurring infections

- ◆ STI testing – gonorrhea, chlamydia, syphilis, trichomonas (in women)
- ◆ Hepatitis serologies (A, B, C)
- ◆ Toxoplasmosis IgG
- ◆ TB (ppd or IGRA)
- ◆ Cryptococcus antigen



DHHS ART Guidelines, 2019

DHHS Opportunistic Infections Guidelines, 2019

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# Follow-Up or ART Modification

	2-8 Weeks After ART Initiation or Modification	Q 4 to 8 Weeks Until VL < 200	Q 3 to 4 months (First 2 years)	Q 6 months
Viral Load	X	X	X	
CD 4 count			X	
BMP	X			X
LFTs	X			X

# Most common antiretroviral medications 2022

## Nucleoside Reverse Transcriptase Inhibitors

★	Emtricitabine	FTC
	Lamivudine	3TC
	Abacavir	ABC
★	TenofovirAF	TAF
	TenofovirDF	TDF
	Zidovudine	ZDV/AZT

## Protease Inhibitors

Darunavir      DRV.cbc

## Integrase Inhibitors

★	Dolutegravir	DTG
	Bictegravir	BTG
	Elvitegravir	EVG.cbc
	Raltegravir	RAL
	Cabotegravir	CAB

## Non-nucleoside Reverse Transcriptase Inhibitors

Efavirenz      EFV  
Rilpivirine      Ril  
Doravirine      Dor

# Recommended Regimens for Rapid ART

DHHS <sup>[1]</sup>
<b>Recommended Regimens</b>
★ BIC/FTC/TAF
DTG + (TAF or TDF) + (3TC or FTC)
(DRV/RTV or DRV/COBI) + (TAF or TDF) + (3TC or FTC)
<b>Regimens Not Recommended</b>
NNRTI-based regimens or DTG/3TC due higher rate of transmitted NNRTI and NTRI drug resistance
Regimens requiring ABC until HLA-B*5701 test results received

IAS-USA <sup>[2]</sup>
<b>Recommended Regimens</b>
DTG + (FTC or 3TC)/(TAF or TDF)
★ BIC/FTC/TAF
DRV/RTV + (FTC or 3TC)/(TAF or TDF)
<b>Regimens Not Recommended</b>
NNRTI-based regimens due to concerns over transmitted drug resistance (K103N)
Regimens requiring ABC until HLA-B*5701 test results received

# Why integrase inhibitors?

High barrier to resistance

Well-tolerated, minimal side effects

Minimal drug-drug reactions



# Where to go for help

- ◆ UCSF – national clinician conference center
  - ◆ [National Clinician Consultation Center \(ucsf.edu\)](https://www.ucsf.edu/national-clinician-consultation-center)
- ◆ AETC – AIDS Education and Training Center
- ◆ DHHS – Department of Health and Human Services
- ◆ CDC – Center for Disease Control

# 5-minute updates in HIV treatment/HIV Prevention



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# Primary Prophylaxis Guidelines

Prophylaxis against disseminated mycobacterium avium complex (MAC)

- ◆ No longer recommended for adults/adolescents who immediately initiate ART (AII)
- ◆ Only recommended in patients with HIV not on ART/viremic with CD4 <50

Two RCT, placebo-controlled trials + observational data demonstrates people with HIV on ART have minimal risk of developing MAC



# Clinical Decision Points

CD4  $\leq$  200 Begin PJP prophylaxis -> (Bactrim DS QD or MWF)

Risk for Candida (no prophylaxis)

CD4  $\leq$  100 Toxoplasmosis prophylaxis (if IgG+) -> (Bactrim DS QD)

CD4  $\leq$  50 Risk for MAC (no prophylaxis)

Risk for CMV retinitis (no prophylaxis)

# ART/PrEP updates

## ART

- ◆ Long-acting injectable ART  
Cabotegravir/rilpivirine (integrase/NNRTI)

## PrEP

- ◆ TDF/FTC (Truvada) once daily
- ◆ NEW: TAF/FTC (Descovy) once daily  
Not for women at risk through sex
- ◆ NEW: Long-acting injectable cabotegravir (integrase inhibitor)

# Sexually Transmitted Infection Updates

- ◆ Uncomplicated gonococcal infection: ceftriaxone 500mg IM x1 (increased from 250mg)
- ◆ Chlamydia infection: doxycycline 100mg BID x 7 days (prior 1gm azithromycin x 1)
- ◆ Hepatitis C: Screening now include all adults 18-79 years of age

# Final Takeaways

- ◆ Test everyone for HIV (opt-out)
  - ◆ Repeat HIV screening annually and consider PrEP for anyone at high risk
  
- ◆ All HIV+ patients should receive ART
  - ◆ Decreased transmission, increased survival with rapid start
  - ◆ **First line Rapid Start ART:** Integrase inhibitor or Darunavir/c with TAF/FTC

Any Questions?



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# Acknowledgement

- ◆ Peter Veldkamp, MD, MSc  
Professor of Medicine, Division of Infectious Diseases,  
University of Pittsburgh School of Medicine

# Resources (Website)

1. National HIV Curriculum. Created by University of Washington.  
<https://www.hiv.uw.edu>
2. Clinical Info HIV gov. Clinical Guidelines.  
<https://clinicalinfo.hiv.gov/en/guidelines>
3. National Clinician Consultation Center. HIV/AIDS Management. UCSF.  
<https://nccc.ucsf.edu/clinician-consultation/hiv-aids-management/>
  - Submit your care online
  - Call for a Phone Consultation
4. HIV Drug Interactions. University of Liverpool.  
<https://www.hiv-druginteractions.org>
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<https://www.cdc.gov/hiv/basics/index.html>

# Resources (Article)

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<https://www.idsociety.org/practice-guideline/primary-care-management-of-people-with-hiv/>
2. HIV Infection in Adults: Initial Management. Am Fam Physician. 2021 Apr.  
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