

UAB THE UNIVERSITY OF
ALABAMA AT BIRMINGHAM.

Update on HIV and COVID-19

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Disclosures

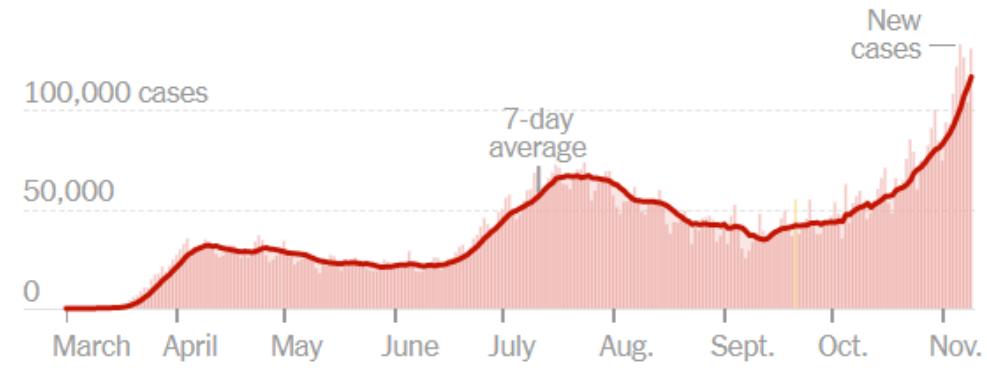
- Alabama PI for NIAID/Eli Lilly BLAZE-2 clinical trial
- Research support paid to my institution from Merck Foundation

Objectives

- Describe the latest research on COVID-19 infection among people with HIV.
- Discuss the impact of the COVID-19 pandemic on provision of HIV testing and care
- Review outpatient triage and management of HIV patients with COVID-19 infection.

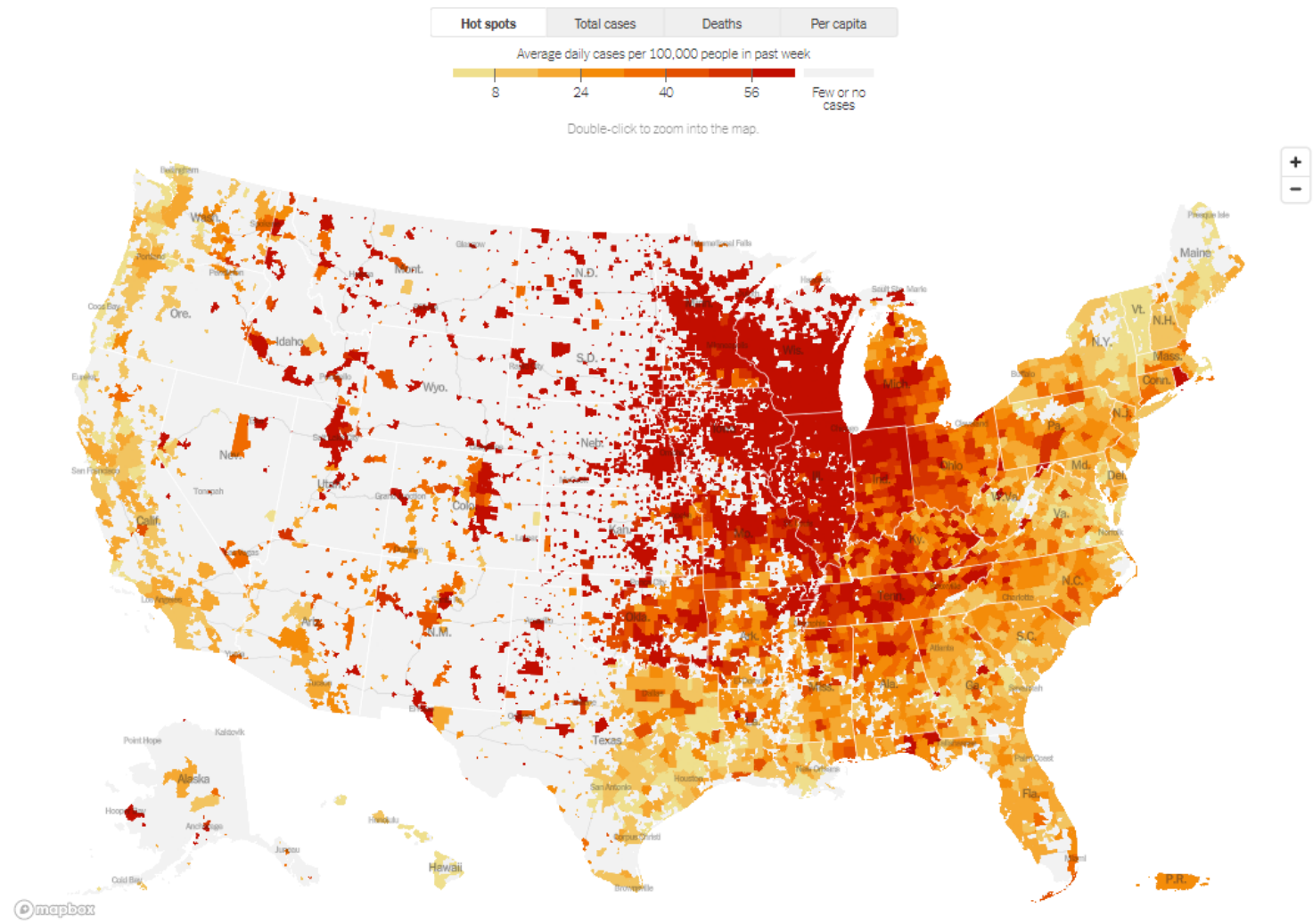
By The New York Times Updated November 10, 2020, 1:02 A.M. E.T.

Leer en español



	TOTAL REPORTED	ON NOV. 9	14-DAY CHANGE
Cases	10.1 million+	130,553	+64% ↗
Deaths	238,776	745	+18% →

■ Day with data reporting anomaly.
 Includes confirmed and probable cases where available. 14-day change trends use 7-day averages.



New York Times, Nov 10, 2020
<https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html#map>

Sources: State and local health agencies. Population and demographic data from Census Bureau.
[About this data](#)

See our [maps tracking the coronavirus outbreak around the world](#).

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Research on COVID-19 in people with HIV

Question 1

- Which of the following statements is **true** based on current research?
- People with HIV are at increased risk for death from COVID-19 compared to the general population.
- Similar to the general population, older age and comorbidities appear to have the strongest impact on mortality from COVID-19 in people with HIV.
- People with HIV differ from the general population in that immune status (CD4 count and viremia) appear to be the most important prognostic factor for death from COVID-19 rather than comorbidities.

Question 1

- Which of the following statements is true based on current research?
- People with HIV are at increased risk for death from COVID-19 compared to the general population.
- **Similar to the general population, older age and comorbidities appear to have the strongest impact on mortality from COVID -19 in people with HIV.**
- People with HIV differ from the general population in that immune status (CD4 count and viremia) appear to be the most important prognostic factor for death from COVID-19.

COVID-19 experience at the UAB HIV Clinic

- Large urban HIV clinic at an academic medical center
- Provides care for 3600 patients
- Analyzed data on COVID-19 cases March- August 2020
- 48 patients had COVID-19 infection (1.4% of clinic population)
- 44% had positive testing at our institution and 56% reported a positive test elsewhere



Factors associated with COVID-19 infection

- In unadjusted analysis, age ≥ 65 years, obesity, and hypertension were associated with increased odds of COVID-19 infection and current smoking associated with decreased odds
- In adjusted analysis, only hypertension remained significant
- Caveat: small population limited our ability to assess differences

Patient characteristics	Adjusted OR (95% CI)	p-value
Age, years		
<50	Ref	
50-64	0.82 (0.41-1.62)	0.57
≥ 65	1.71 (0.70-4.16)	0.24
Sex		
Female	Ref	
Male	1.02 (0.52-2.01)	0.96
M-F transgender	2.03 (0.25-16.50)	0.51
Race		
White	Ref	
Black	1.85 (0.86-3.96)	0.11
Other/unspecified	2.16 (0.45-10.32)	0.33
Body mass index, kg/m²		
Normal, underweight (<25)	Ref	
Overweight (25-29.9)	1.44 (0.64-3.25)	0.38
Obese (≥ 30)	1.47 (0.66-3.25)	0.34
Current smoking		
No	Ref	
Yes	0.52 (0.25-1.08)	0.08
Hypertension		
No	Ref	
Yes	2.30 (1.12-4.73)	0.02
Patient characteristics which were statistically significant in unadjusted analysis at $p < 0.05$ were included in the adjusted model (age, BMI, current smoking, hypertension) in addition to sex and race. Characteristics lacking statistical significance in unadjusted analysis included CD4, plasma HIV-1 RNA, antiretroviral regimen (INSTI, NNRTI, PI use; tenofovir use); glomerular filtration rate; comorbidities including COPD, asthma, diabetes, pulmonary hypertension, CHF, CAD, chronic liver disease, solid organ transplant, stroke, HCV)		

Severity of disease among UAB HIV Clinic patients with COVID-19 infection, March-August 2020 (N=48)

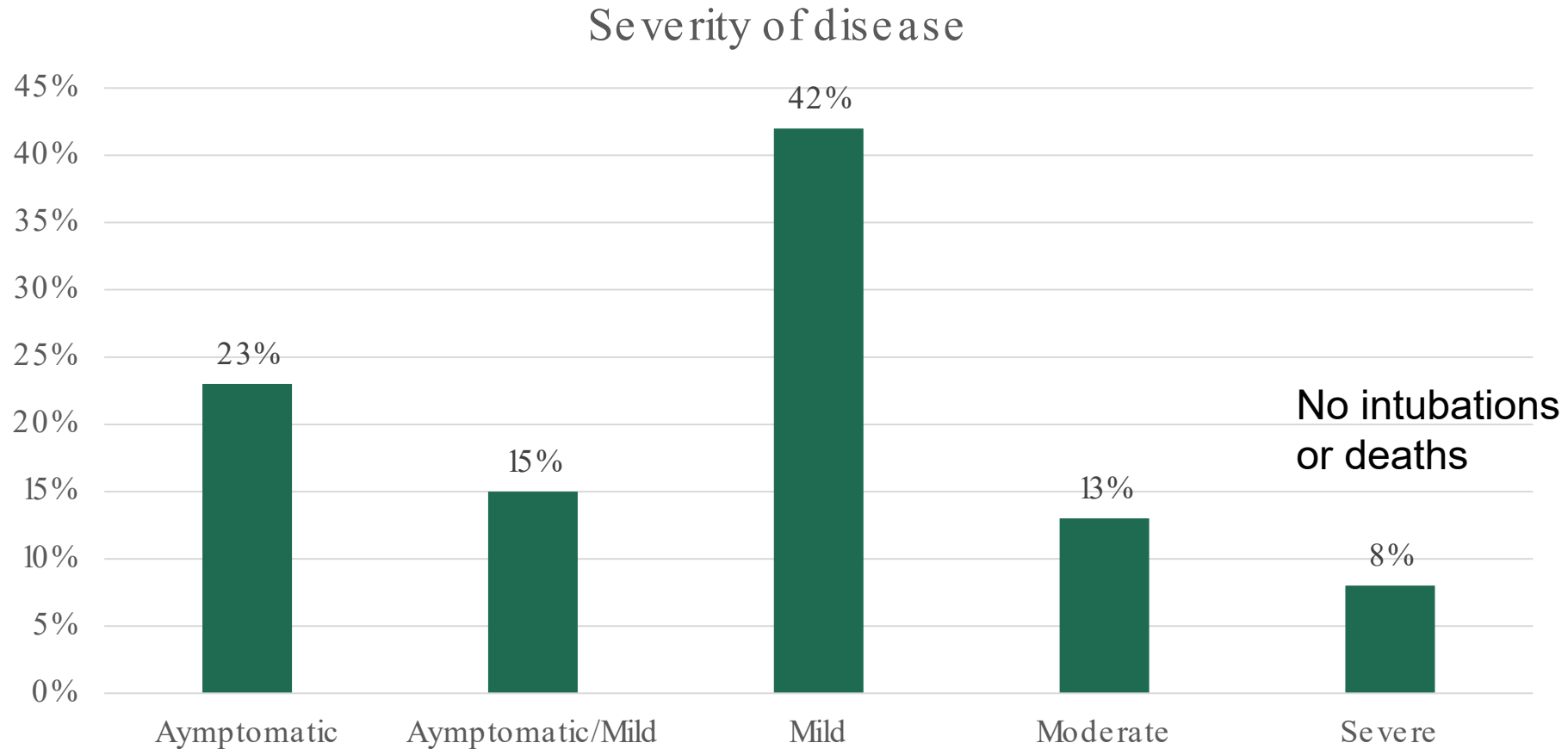
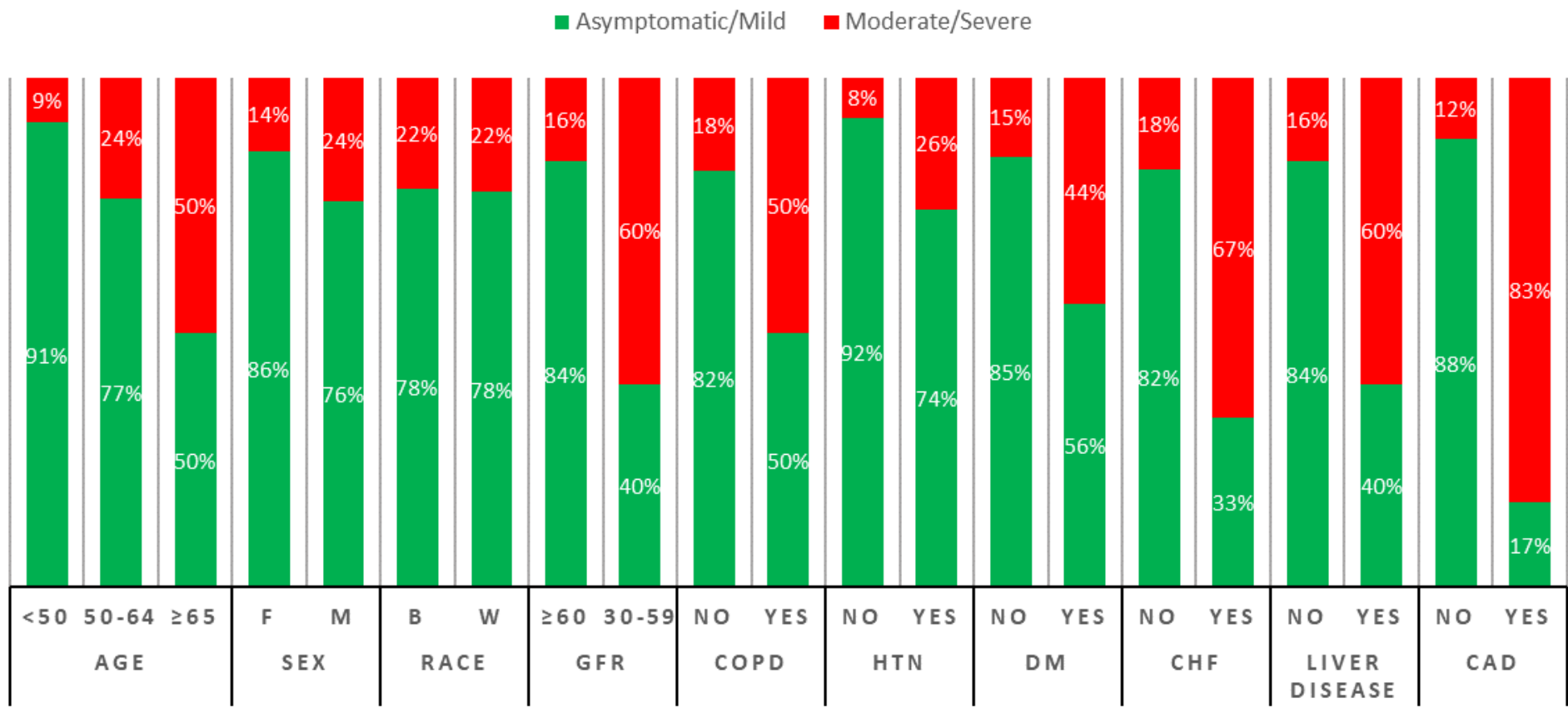


FIGURE: PATIENT CHARACTERISTICS STATIFIED BY COVID-19 SEVERITY



Notes: compared using Fisher's exact tests; p-values for age p=0.047; sex p=0.76; race p=1.00; GFR p=0.05; COPD p=0.19; HTN p=0.25; DM p=0.08; CHF p=0.11; chronic liver disease p=0.05; CAD p=0.0008. Other comparisons included by CD4, plasma HIV-1 RNA, body mass index, current smoking, asthma, pulmonary hypertension, solid organ transplant, chronic HCV, antiretroviral therapy (INSTI, NNRTI, and PI use; tenofovir use); all p > 0.30

Conclusions

- Prevalence of COVID-19 is not higher among PWH at our clinic than the general Alabama population (1.4% vs. 2.5%)
- The proportion hospitalized is higher (20.8% vs. 12.4%)
- While our analyses were limited by a small number of cases, they suggest age and comorbidities play the major role in COVID-19 disease severity rather than HIV-related factors.
- Our finding that hypertension was associated with two-fold odds of COVID-19 diagnosis bears further investigation in larger cohort studies. May be related to residual confounders



The first 6 months of HIV-SARS-CoV-2 coinfection: outcomes for 6947 individuals

Rowena Johnston

Jan-July 2020

Purpose of review

The aim of this review is to summarize the clinical outcomes of people living with HIV (PWH) coinfecting with SARS-CoV-2 during the first six months of the COVID-19 pandemic.

Recent findings

Several reports from single centers have described increased, decreased, or no difference in outcomes of COVID-19 in PWH. These studies have come from a range of locations, each with different underlying HIV prevalence and access to various antiretroviral therapy (ART) regimens. Differences in healthcare quality, access and policies may also affect reported outcomes in PWH across different locations, making interpretation of results more challenging. Meanwhile, different components of ART have been proposed to protect against SARS-CoV-2 acquisition or disease progression.

Summary

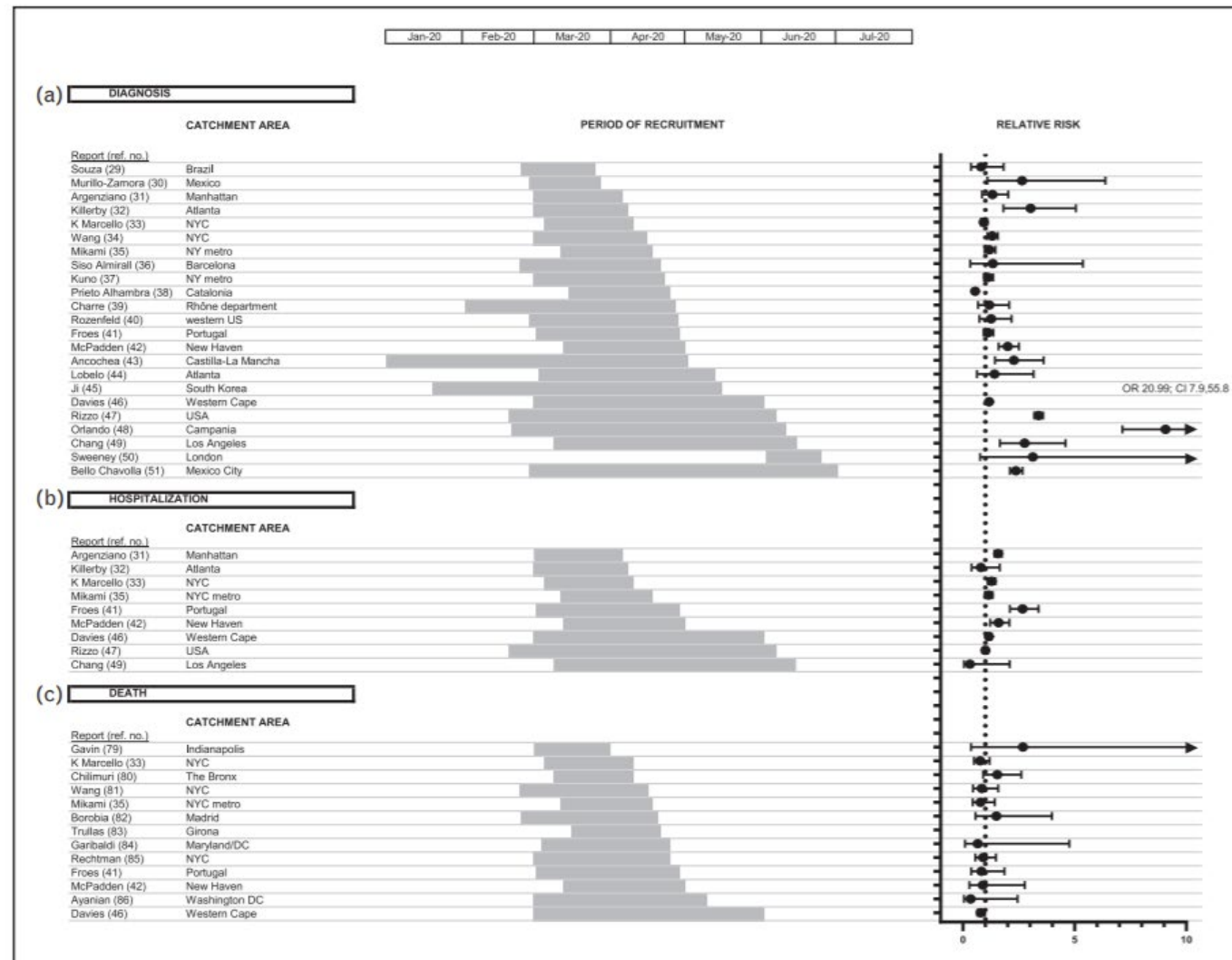
The current review considers 6 months of data across geographic regions with a range of healthcare quality and access and ART regimens to generate a wider view of COVID-19 outcomes in PWH. Taken together, these studies indicate that HIV infection may be associated with increased risk of COVID-19 diagnosis, but comorbidities appear to play a larger role than HIV-specific variables in outcomes of COVID-19 among PWH. ART does not appear to protect from COVID-19 disease acquisition, progression or death.

Keywords

COVID-19, HIV, HIV-COVID-19 outcomes, HIV-SARS-CoV-2 coinfection, SARS-CoV-2

Johnston, Rowena The first 6 months of HIV-SARS-CoV-2 coinfection, Current Opinion in HIV and AIDS: November 05, 2020 - Volume Publish Ahead of Print - Issue - doi: 10.1097/COH.0000000000000654

Relative risk for COVID diagnosis, hospitalization, and death



People with HIV had increased risk for COVID-19 diagnosis compared to catchment area but no difference in hospitalization or mortality

Factors associated with mortality among people with HIV and COVID-19

- Age >50
- Chronic respiratory disease
- Cardiovascular disease
- Diabetes
- Hypertension
- Renal disease



Photo source: NBC News

Factors NOT associated with COVID mortality

- ART drug class or agents
- CD4 count
- Viral load
- Number of patients not on ART small but didn't see any association between lack of ART and death

Additional studies

- Ssentango P, et al. at Penn State presented a systematic review and meta-analysis on the prevalence of HIV among hospitalized COVID patient and outcomes at IDWeek 2020 (14 studies included; N = 592 PWH)
 - Prevalence of HIV among patients hospitalized for COVID-19 was 2-fold higher than prevalence of HIV in general population (1.22 events/100 population)
 - Difference did not reach statistical significance

ART, PrEP, and COVID-19

Question 2

- TRUE or FALSE: Lopinavir/ritonavir is a recommended agent in the treatment of COVID-19

Question 2

- **FALSE** - Clinical trials have not found LPV/r efficacious in treating COVID19 and its use is not recommended
- In addition, there is potential downside to its use in terms of drug-drug interactions due to CYP3A inhibition and QT prolongation

Lopinavir/ritonavir and COVID-19

- RECOVERY trial: hospitalized patients with COVID-19 randomized to LPV/r versus standard care
 - No significant difference in mortality, mechanical ventilation, or length of stay
- SOLIDARITY trial: evaluated lopinavir and lopinavir + interferon in patients hospitalized with COVID-19
 - Trial halted July 4, 2020 by WHO
 - Interim results showed no significant difference in mortality, mechanical ventilation
- IDSA recommends use only in randomized clinical trials
- NIH Panel for COVID-19 Treatment Guidelines recommends against its use

<https://www.medscape.com/answers/2500114197452/whatis-the-role-of-the-antivirals-lopinavirritonavir-in-the-treatment-of-coronavirus-disease-2019-covid-19>

Incidence and Severity of COVID-19 in HIV-Positive Persons Receiving Antiretroviral Therapy

A Cohort Study

Julia del Amo, MD, PhD; Rosa Polo, MD, PhD; Santiago Moreno, MD, PhD; Asunción Díaz, MD, PhD; Esteban Martínez, MD, PhD; José Ramón Arribas, MD, PhD; Inma Jarrín, PhD; and Miguel A. Hernán, MD, DrPH; for The Spanish HIV/COVID-19 Collaboration*

Background: The incidence and severity of coronavirus disease 2019 (COVID-19) among HIV-positive persons receiving anti-retroviral therapy (ART) have not been characterized in large populations.

Objective: To describe the incidence and severity of COVID-19 by nucleos(t)ide reverse transcriptase inhibitor (NRTI) use among HIV-positive persons receiving ART.

Design: Cohort study.

Setting: HIV clinics in 60 Spanish hospitals between 1 February and 15 April 2020.

Participants: 77 590 HIV-positive persons receiving ART.

Measurements: Estimated risks (cumulative incidences) per 10 000 persons and 95% CIs for polymerase chain reaction-confirmed COVID-19 diagnosis, hospitalization, intensive care unit (ICU) admission, and death. Risk and 95% CIs for COVID-19 diagnosis and hospital admission by use of the NRTIs tenofovir disoproxil fumarate (TDF)/emtricitabine (FTC), tenofovir alafenamide (TAF)/FTC, abacavir (ABC)/lamivudine (3TC), and others were estimated through Poisson regression models.

Results: Of 77 590 HIV-positive persons receiving ART, 236 were diagnosed with COVID-19, 151 were hospitalized, 15 were admitted to the ICU, and 20 died. The risks for COVID-19 diag-

nosis and hospitalization were greater in men and persons older than 70 years. The risk for COVID-19 hospitalization was 20.3 (95% CI, 15.2 to 26.7) among patients receiving TAF/FTC, 10.5 (CI, 5.6 to 17.9) among those receiving TDF/FTC, 23.4 (CI, 17.2 to 31.1) among those receiving ABC/3TC, and 20.0 (CI, 14.2 to 27.3) for those receiving other regimens. The corresponding risks for COVID-19 diagnosis were 39.1 (CI, 31.8 to 47.6), 16.9 (CI, 10.5 to 25.9), 28.3 (CI, 21.5 to 36.7), and 29.7 (CI, 22.6 to 38.4), respectively. No patient receiving TDF/FTC was admitted to the ICU or died.

Limitation: Residual confounding by comorbid conditions cannot be completely excluded.

Conclusion: HIV-positive patients receiving TDF/FTC have a lower risk for COVID-19 and related hospitalization than those receiving other therapies. These findings warrant further investigation in HIV preexposure prophylaxis studies and randomized trials in persons without HIV.

Primary Funding Source: Instituto de Salud Carlos III and National Institutes of Health.

Ann Intern Med. 2020;173:536-541. doi:10.7326/M20-3689 **Annals.org**

For author, article, and disclosure information, see end of text.

This article was published at Annals.org on 26 June 2020.

* For members of The Spanish HIV/COVID-19 Collaboration, see the Appendix (available at Annals.org).

- Some lab-based studies suggesting NRTIs might have potential to inhibit COVID-19 infection
- Number of patients taking TDF/FTC small
- Distribution of age across regimens not specified although results not significantly changed when limited to patients <60 years old
- Did not control for comorbidities (possibility of channeling bias)



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Summary

The current review considers 6 months of data across geographic regions with a range of healthcare quality and access and ART regimens to generate a wider view of COVID-19 outcomes in PWH. Taken together, these studies indicate that HIV infection may be associated with increased risk of COVID-19 diagnosis, but comorbidities appear to play a larger role than HIV-specific variables in outcomes of COVID-19 among PWH. ART does not appear to protect from COVID-19 disease acquisition, progression or death.

Keywords

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Review discussed earlier did not find a protective effect of any class of ART or specific agents for severity of disease or death

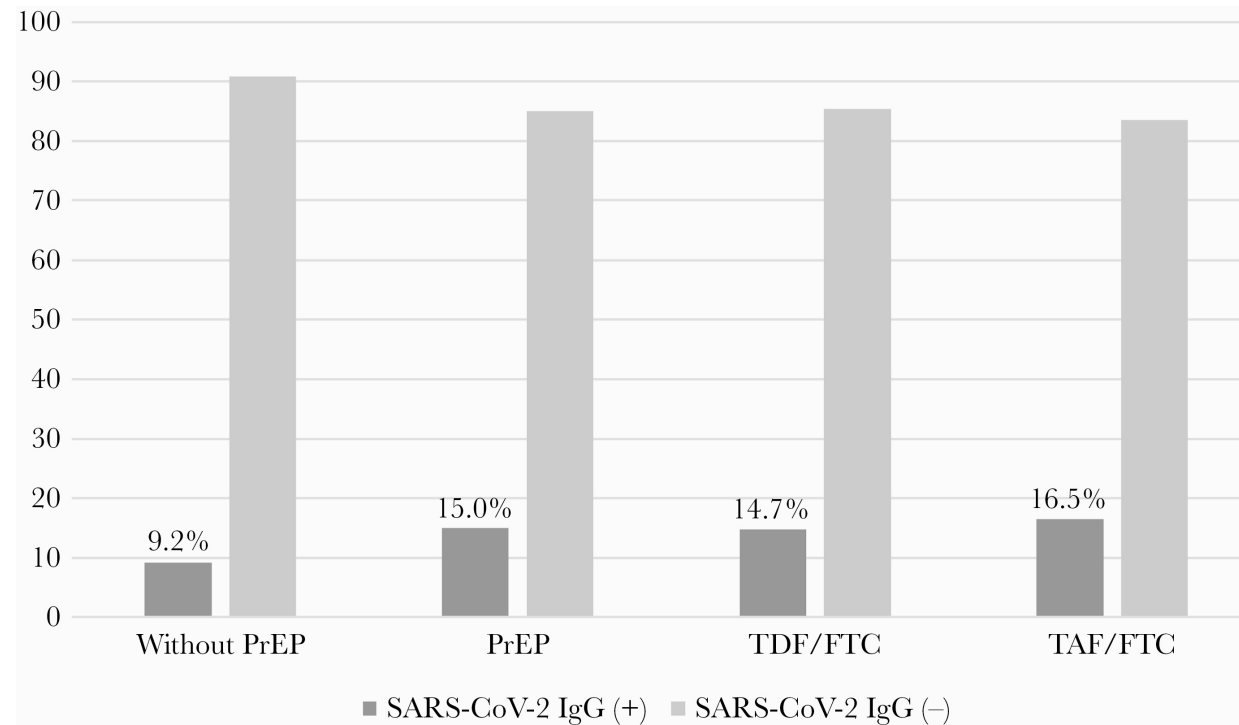
Question 3

- TRUE or FALSE: There is evidence PReP may help prevent COVID-19 infection.

Question 3

- FALSE – although not well-studied, current research has not found any indication that PrEP prevents COVID-19 infection

Figure 1. Presence of immunoglobulin G antibodies (chemiluminescent microparticle immunoassay) for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in men who have sex with men and transgender women without the use of pre-exposure prophylaxis (PrEP) (Group 1; n = 250) an PrEP users (Group 2; n = 500) with disoproxil fumarate/emtricitabine (TDF/FTC) (n = 409) and tenofovir alafenamide/emtricitabine (TAF/FTC) (n = 91).



Take home point

- There is not currently evidence to support the use of ART for the prevention or treatment of COVID-19 infection

Impact of COVID-19 pandemic on HIV testing, prevention and care

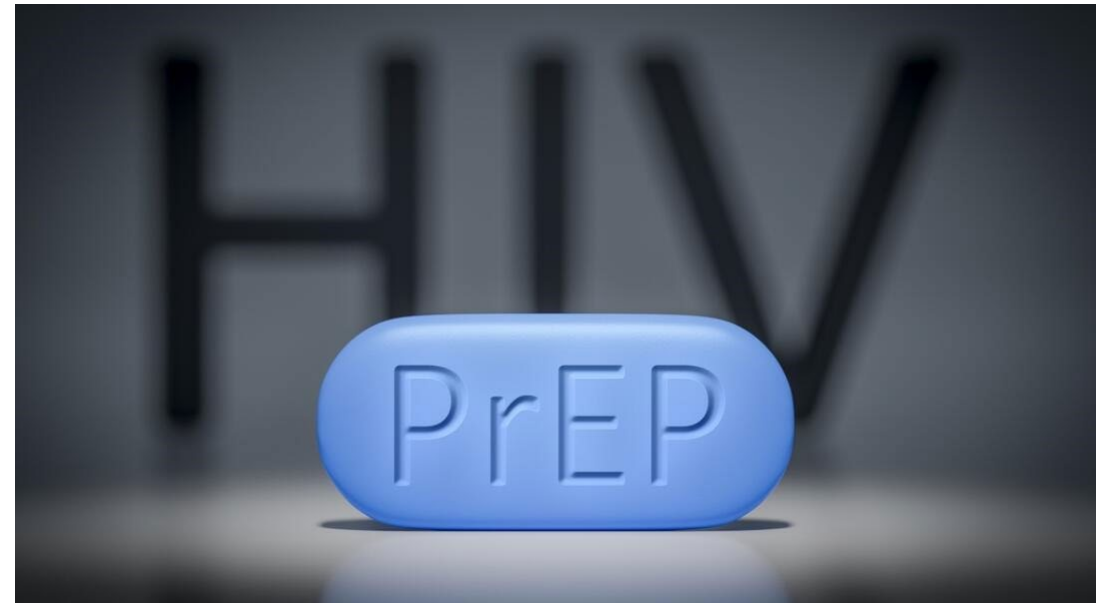
Concern for decline in HIV testing during pandemic

- Presentation by David Pitrak, MD at ID Week
- Data from emergency departments in 13 health care centers in Chicago
- Most had 4th and 5th generation HIV antibody testing
- Significant reduction in number of screening HIV tests in most site
 - Exception was UChicago Medicine where advanced planning at incorporated HIV screening with COVID testing
- Significant increase in patients with acute HIV infections
- Recommended incorporating HIV screening with COVID testing

<https://www.idsociety.org/news-publications-new/articles/2020/routine-hiv-screenings-decreased-patients-with-acute-hiv-infections-increased-in-chicago-ers-during-covid/>

Concern for decline in PReP use

- Fenway Health in Boston, sexual health clinic in Boston
- Early in pandemic reported 278% increased in unfilled PReP prescriptions and 72% drop in new prescriptions
- Survey of 204 MSM on PReP at Melbourne Health Centre in Australia: 25% had stopped taking PReP and 5% switched to on-demand
 - Most reported this was due to decreased casual sex and number of partners in pandemic



COVID-19 Disruptions 'Life Threatening' for People With HIV
Medscape - Jul 06, 2020.
Open Forum Infectious Diseases, Volume 7, Issue 7, July 2020,
ofaa275, <https://doi.org/10.1093/ofid/ofaa275>

Making it work

- Legacy Community Health, Houston - largest FQHC in Texas
- Pre-pandemic approximately 291 HIV tests/month in person at their 4 clinics and at community events
- March 2020 – drop to 213 tests/month
- June – August – rebound and gain to 400s
- Also had no drop in patients on PReP

HIV Testing Meets COVID19, and the News Isn't All Bad- Medscape - Oct 22, 2020.

Making it work

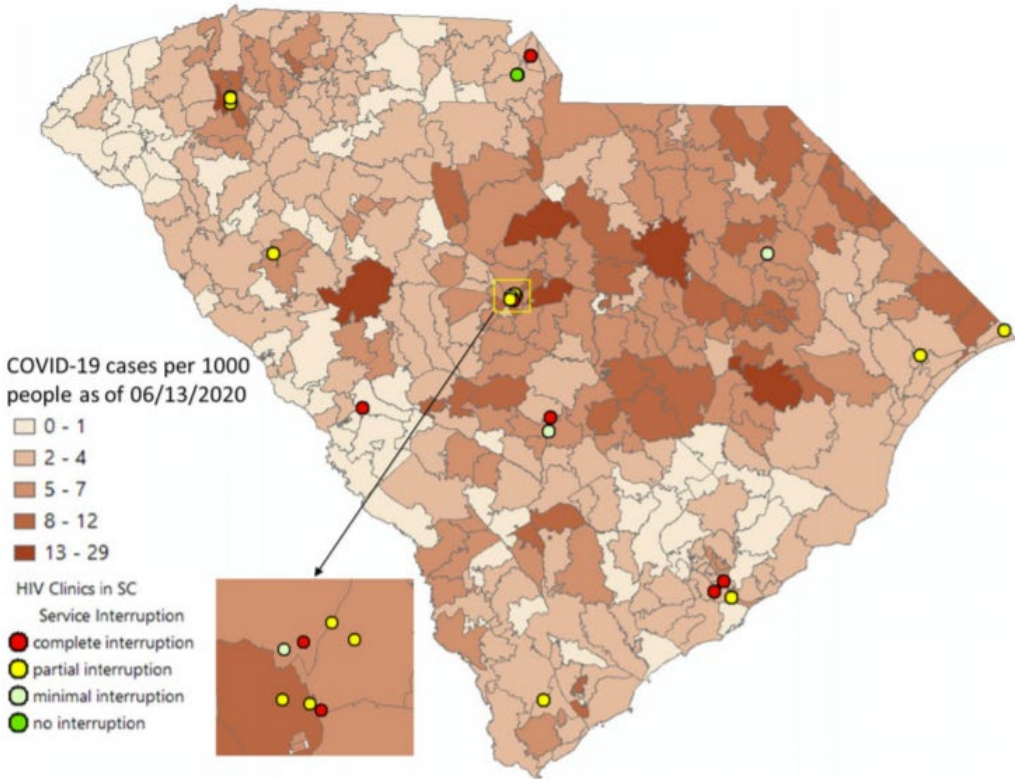


- Stand-alone HIV testing and PReP sites; testing for HIV, HCV, STD screening, pregnancy testing
- For those with negative test
 - rapid telemedicine visit for prevention counseling
 - offer of PReP same day local pharmacy or next day courier
- Universal HIV screening prompt added to EHR for all adult visits
- Fold HIV testing and PReP prescription via telemedicine at routine appointment
- Increased clinic with walk-in testing from 4 to 9
- Allowed clinicians to prescribe PReP without visit for 6 instead of 3 months
- Pharmacists provided rapid tests at PReP pick-up
- Telehealth pre-test counseling with provision of at-home test

Disruption in HIV care

- Study of 27 Ryan White clinics in South Carolina in March 2020
- 56% partially interrupted
- 26% completely closed
- % of uninsured patients was significantly associated with interruption of HIV services

Fig. 1 Geospatial heterogeneity of HIV service interruption and confirmed COVID-19 cases per capita

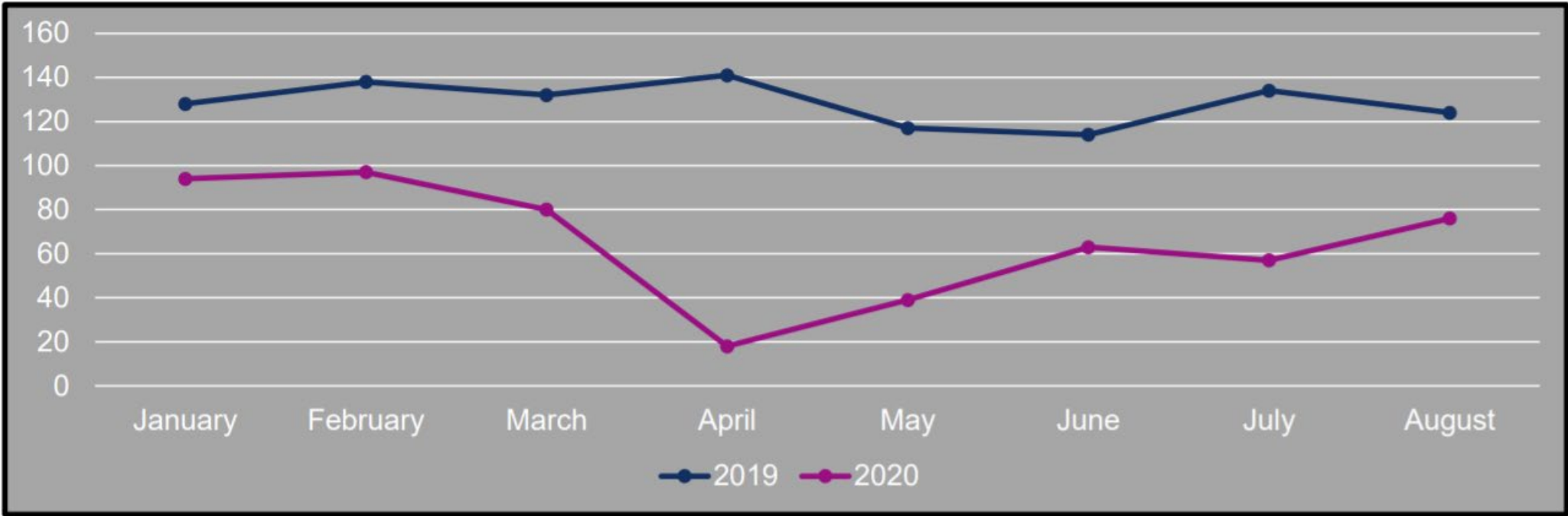


Qiao S, Li Z, Weissman S, et al. Disparity in HIV Service Interruption in the Outbreak of COVID-19 in South Carolina [published online ahead of print, 2020 Aug 27]. *AIDS Behav.* 2020;1-9. doi:10.1007/s10461-020-03013-x

Experience at the UAB 1917 Clinic

- Data & images regarding 1917 experience courtesy of Dr. Jodie Dionne-Odom at UAB
- Oral presentation at ID Week: EHE EFFORTS DURING A PANDEMIC: IMPACT AND INNOVATION IN HIV CARE

1917 CLINIC – NEW PATIENT VISITS; 2019-2020

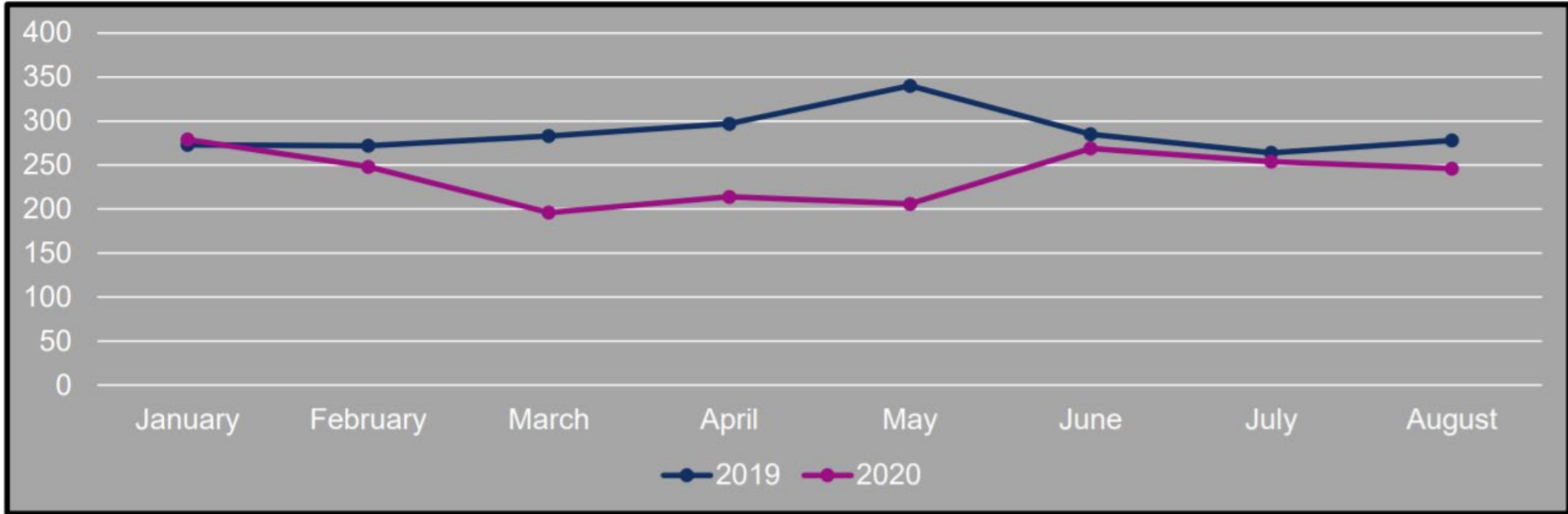


ADPH reported minimal change in HIV testing rates in COVID era

Alabama
Stay at home order



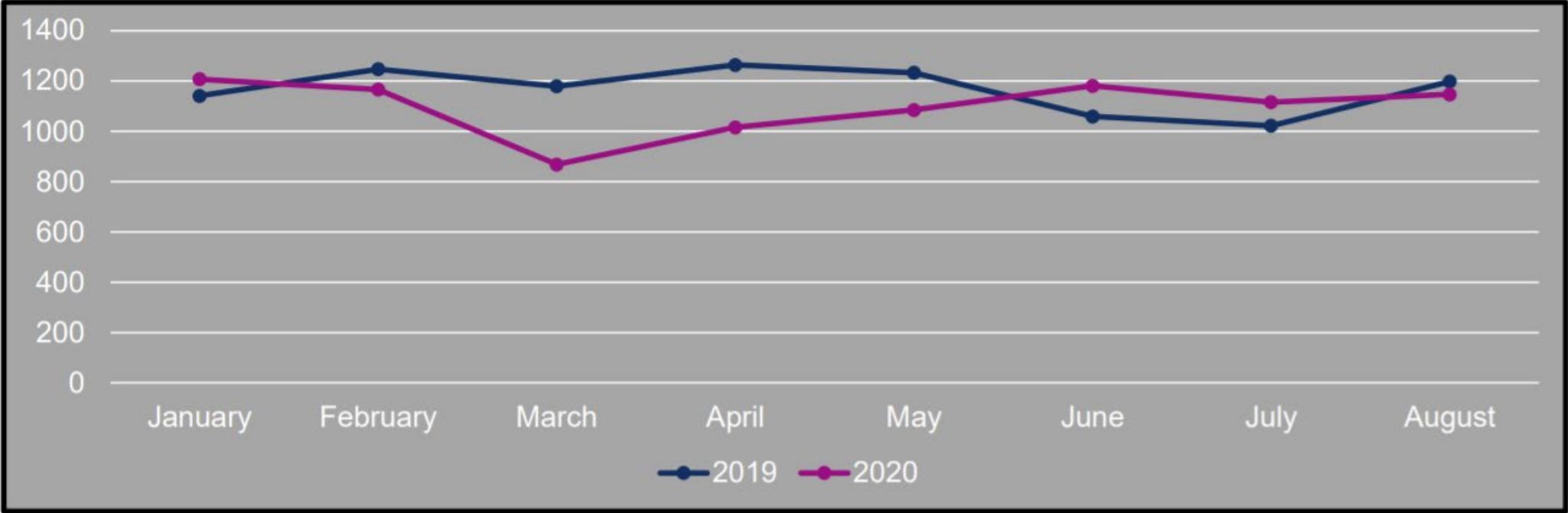
1917 CLINIC – MENTAL HEALTH VISITS; 2019-2020



Alabama
Stay at home order



1917 CLINIC - PATIENT FOLLOW UP VISITS; 2019-2020



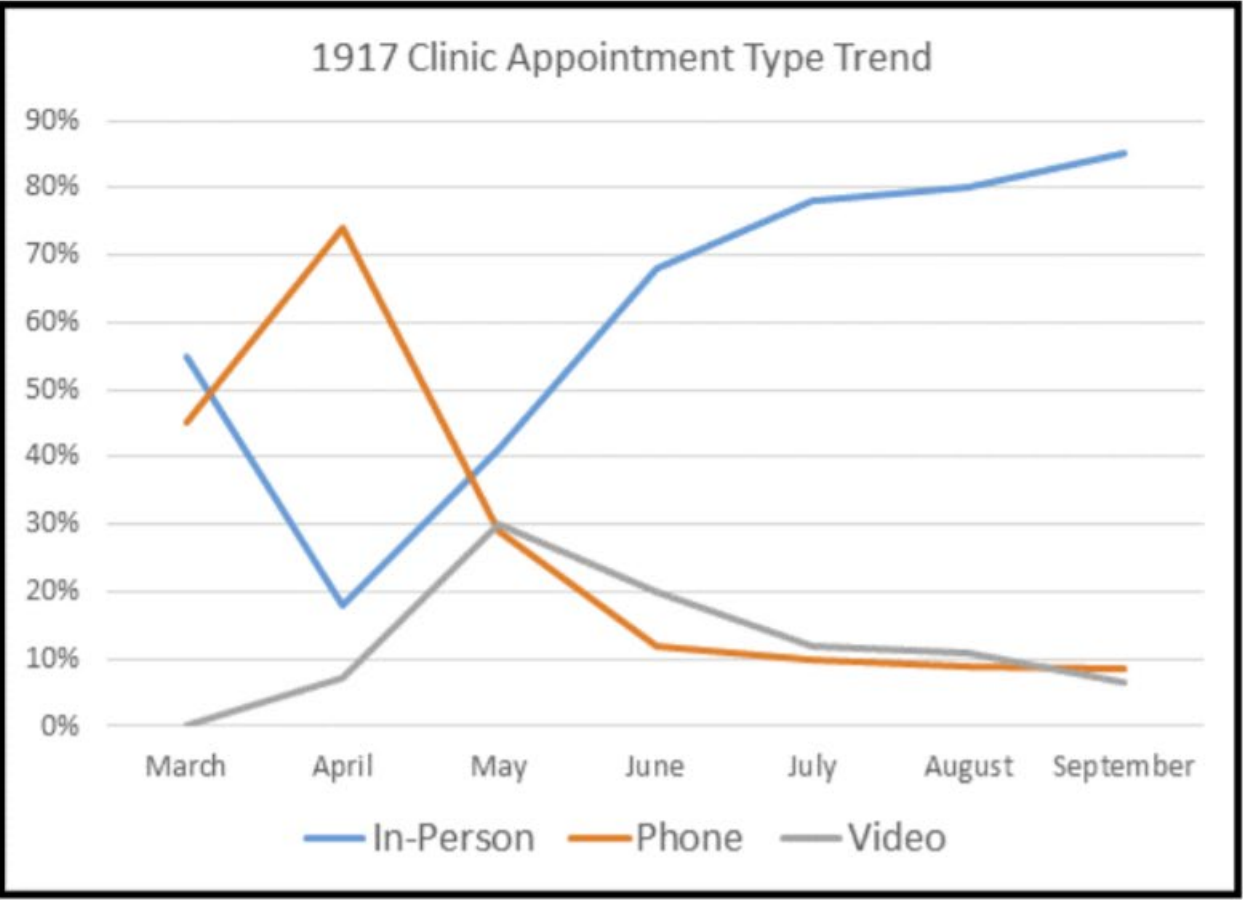
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Advantages and disadvantages of telehealth

- Attendance rates for “reconnect” visits for patients who have fallen out of care improved
- Easier to engage some patients in mental health counseling who have been difficult to engage
- Some patients, especially younger patients, like the mental health tele visits
- Telehealth overwhelming and intimidating for some patients, particularly older patients and those who are less technically-savvy
- In-person works better for high-need newly diagnosed patients
- Can be difficult for providers to have mixed in-person and telehealth visits in same panel

APPOINTMENT TYPES



COVID19 Response

1. Universal masking
2. Train providers in telehealth
3. Defer routine follow up visits and provide medication refills
4. Arrange video or phone visit whenever possible
5. Implement and advertise clinic COVID19 screening
6. ID-led COVID19 clinic



Social impact on our patients

- 68% of request for housing assistance related to COVID pandemic
- Increased food insecurity
- Social isolation

Ambulatory management

Ambulatory management of HIV patients in COVID era

- Education on wearing mask and physical distancing
- Support social distancing with options for telehealth, medication delivery
- Prioritize viral load testing for new diagnoses, patients with recent viremia, patients with history of poor VL suppression, pregnant patients
- Early refills and 90 day prescriptions for ART when permitted by AIDS Drug Assistance Program or insurer
- Referral of symptomatic patients for testing
- If direct contact to COVID, advise on quarantine measures and to call if symptoms

Question 4

- TRUE or FALSE: HIV patients with COVID infection require specialized treatment that differs from that recommended for general public.

Question 4

- FALSE – HIV patients with COVID-19 should be treated according to the same guidelines as the general population. HIV patients virally suppressed on ART have normal life expectancy and should be candidates for the same clinical trials and treatments as uninfected persons.

Outpatient care of HIV patients with COVID

- Guidance available from IDSA: <https://www.idsociety.org/globalassets/idsa/public-health/covid-19/covid-19-special-considerations.pdf>
- Special concerns
 - >50% of PWH are over 50 years old
 - High prevalence of co-morbidities which increase risk for severe illness and death
 - No difference in recommended management but IDSA recommends “heightened awareness” of potential for severe disease in people with co-morbidities, CD4 <200, viremia
 - Drug interactions with ART

Clinical case:

- A 55 year old male with HIV, CD4 455, viral load suppressed on ART calls your office to report a positive COVID PCR test at a community testing site. He has a history of COPD and diabetes mellitus with HgbA1C of 8%. He reports 3 days of symptoms including fatigue, fever to 102, runny nose, HA, body aches, dry cough, and shortness of breath with moderate exertion. No chest pain. He has on O2 monitor and notes that when he walks his O2 saturation drops to 93% but when he rests it is 96%.

Red flag symptoms of COVID-19:

- Blue lips or face
- Cold, clammy, or pale and mottled skin
- Coughing up blood
- Difficult to arouse
- Heart rate > 110 beats per minute
- Little or no urine output
- New confusion
- Nonblanching rash
- Oxygen saturation < 93%
- Respiratory rate > 22 breaths per minute
- Severe pain or pressure in chest
- Severe shortness of breath at rest
- Systolic blood pressure < 100 mm Hg

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**Thank you! Any
questions?**