COVID-19 Impact on HIV Service Delivery and Social Disruption

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Disclosures

I have no disclosures

"The most effective strategy known to reduce COVID-19 infection is social distancing, but herein lies a vexing challenge. Being able to maintain social distancing while working from home, telecommuting, and accepting a furlough from work but indulging in the plethora of virtual social events are issues of *privilege*. In certain communities, these privileges are simply not accessible. Thus, consider the aggregate of a higher burden of at-risk comorbidities, the pernicious effects of adverse social determinants of health, and the absence of privilege that does not allow a reprieve from work without dire consequences for a person's sustenance, does not allow safe practices, and does not even allow for 6-foot distancing. **The consequent infection and death rates due to COVID-19 complications are no longer surprising; they should have been expected**"

Yancy, Clyde. JAMA 2020

Key points

- Persons Living with HIV infected with Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) have similar symptoms as HIV-negative persons
- People with HIV should protect themselves by masking, hand hygiene & social distancing
- There are conflicting case series but with some suggesting that HIV-positive with comorbidities and CD4 < 200 are at higher risk of mortality than HIV-negative persons
- Some studies suggest a possible role of other anti-HIV nucleotide reverse transcriptase inhibitors in SARS-CoV-2
- There is a compelling need to understand and address the psychosocial burdens and stressors that diminish well-being
- Longitudinal retention in care for persons with HIV is associated with improved outcomes and durable viral suppression

Definitions:

SARS-CoV-2:

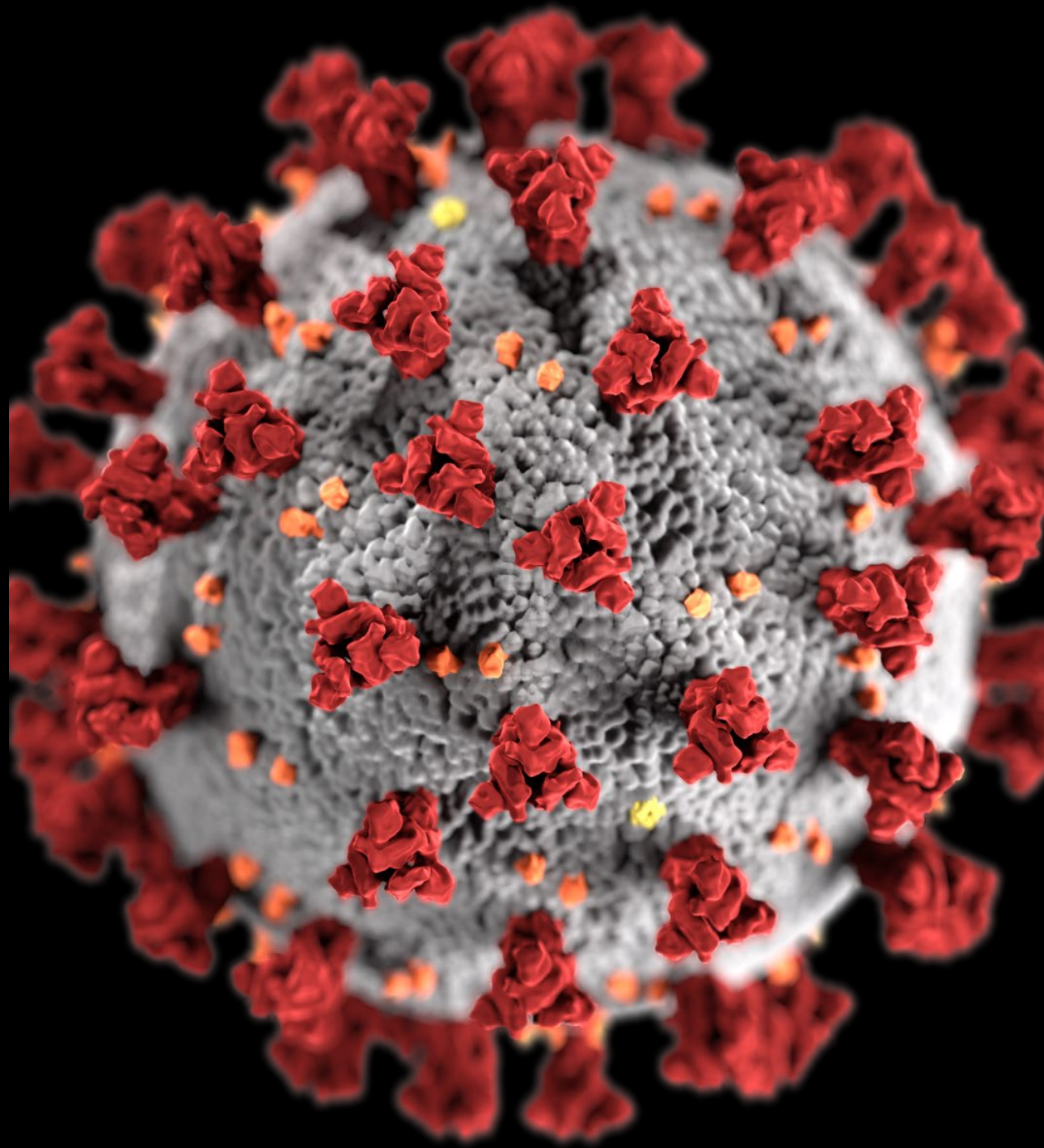
New strain of the coronavirus

COVID-19:

Clinical syndrome caused by SARS-CoV-2

Syndemic:

A set of linked health problems involving two or more afflictions contributing to excess burden of disease



Risk Factors:

Type 2 diabetes

Obesity

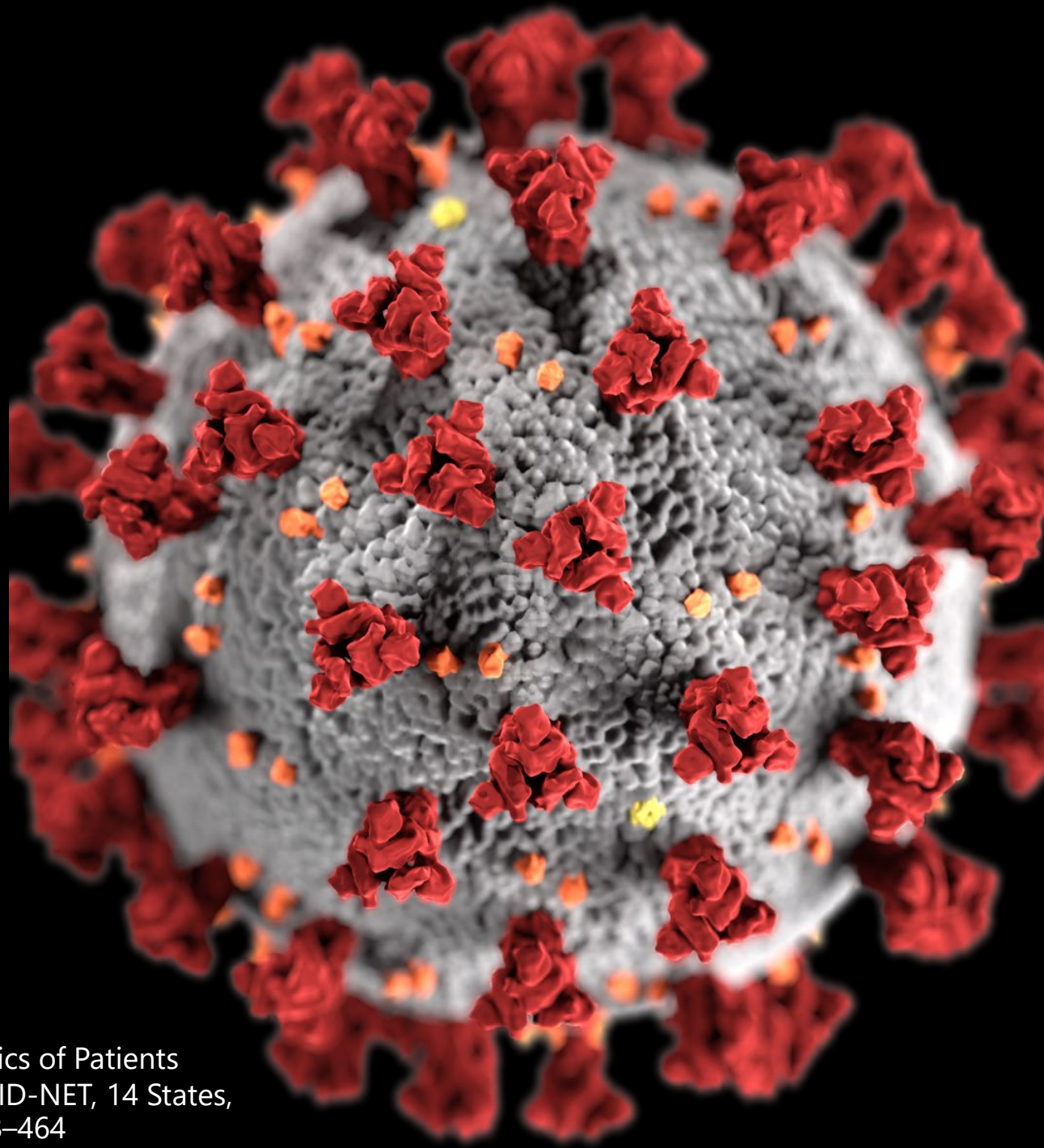
Hypertension

Chronic Lung Disease

Cardiovascular disease

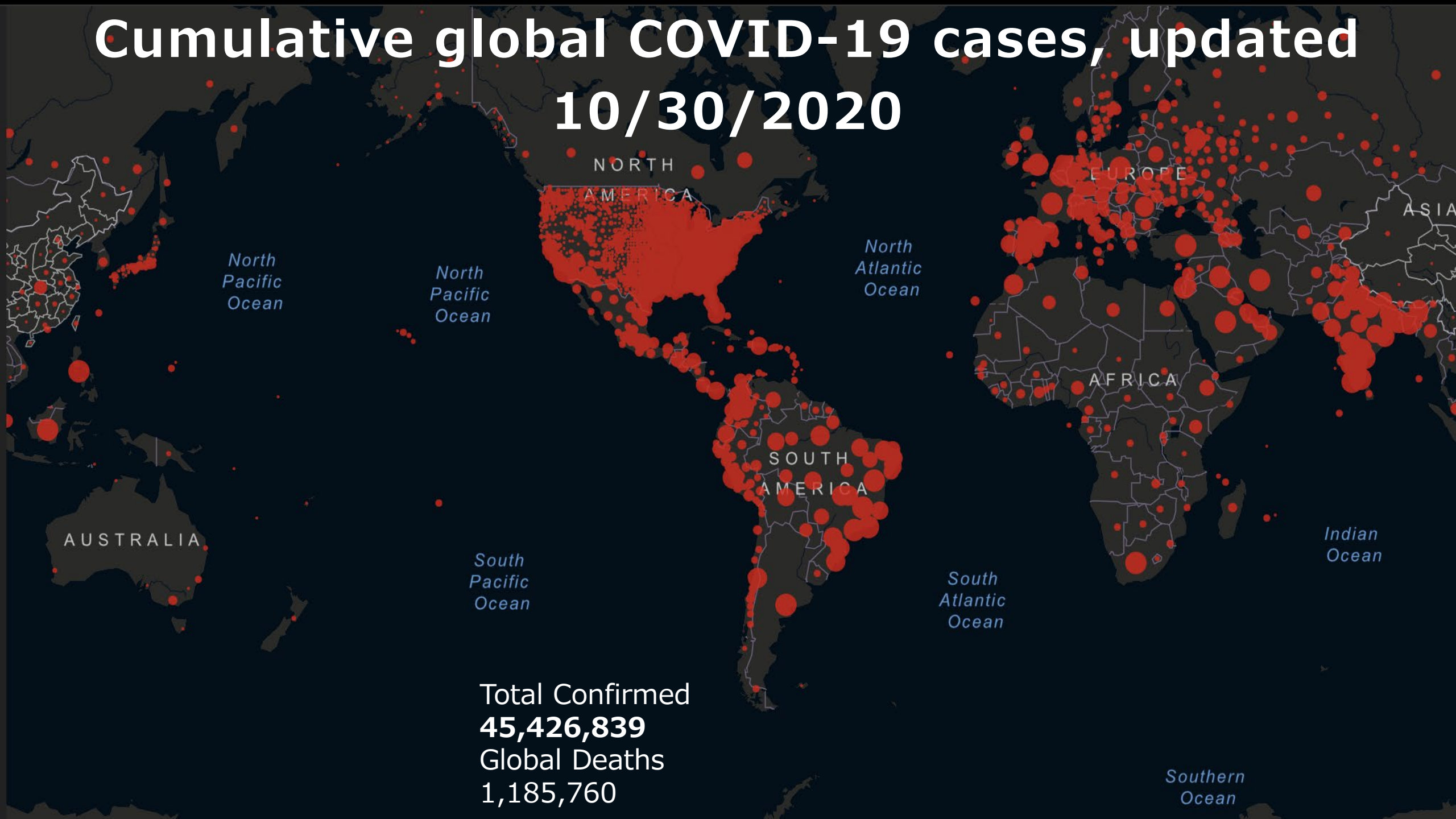
Immune compromised conditions

Chronic renal disease



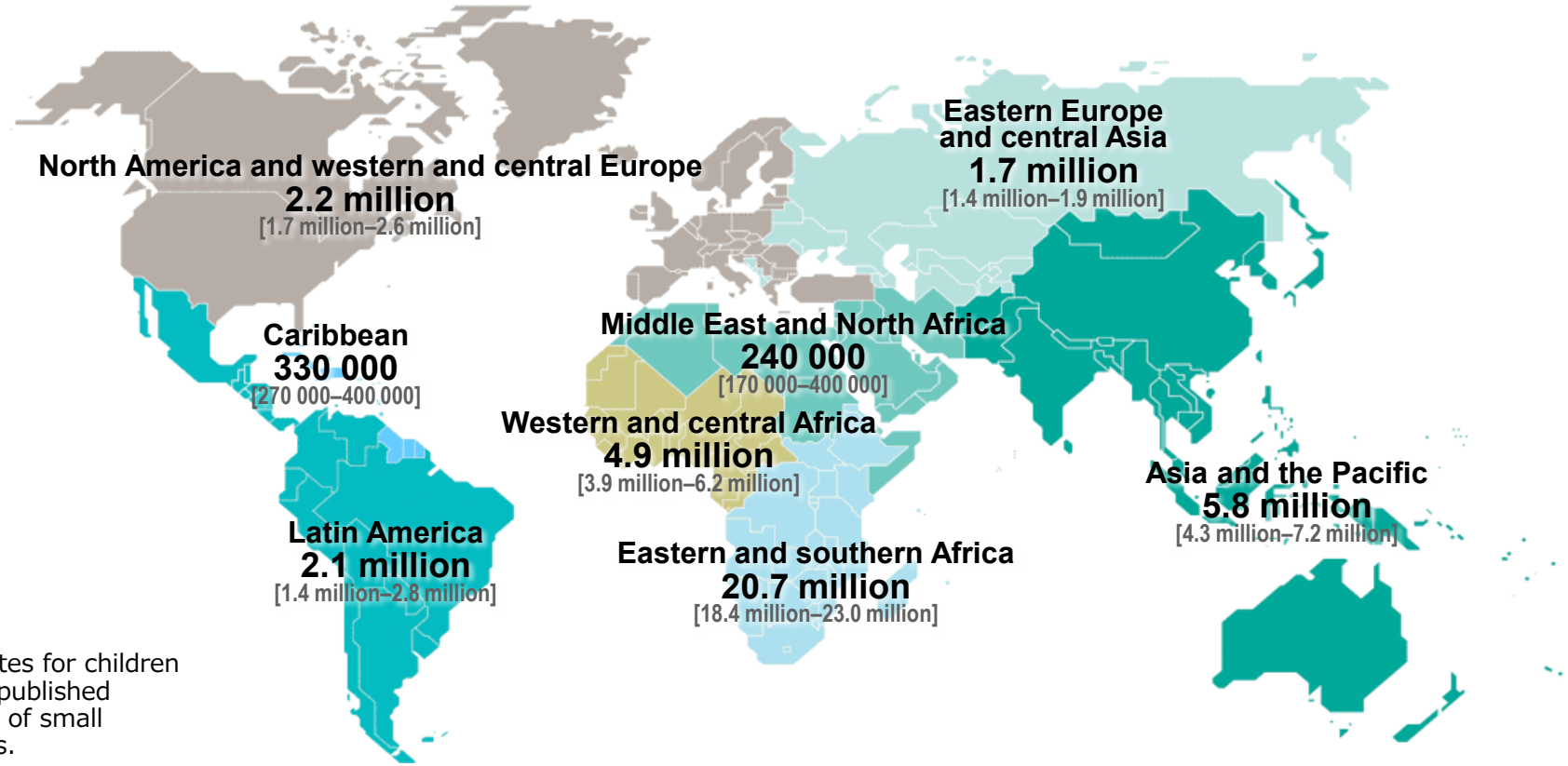
Garg S, Kim L, Whitaker M, et al. Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020. MMWR Morb Mortal Wkly Rep 2020;69:458–464

Cumulative global COVID-19 cases, updated 10/30/2020



UNAIDS

Adults and children estimated to be living with HIV | 2019



*Estimates for children are not published because of small numbers.

Total: 38.0 million [31.6 million–44.5 million]

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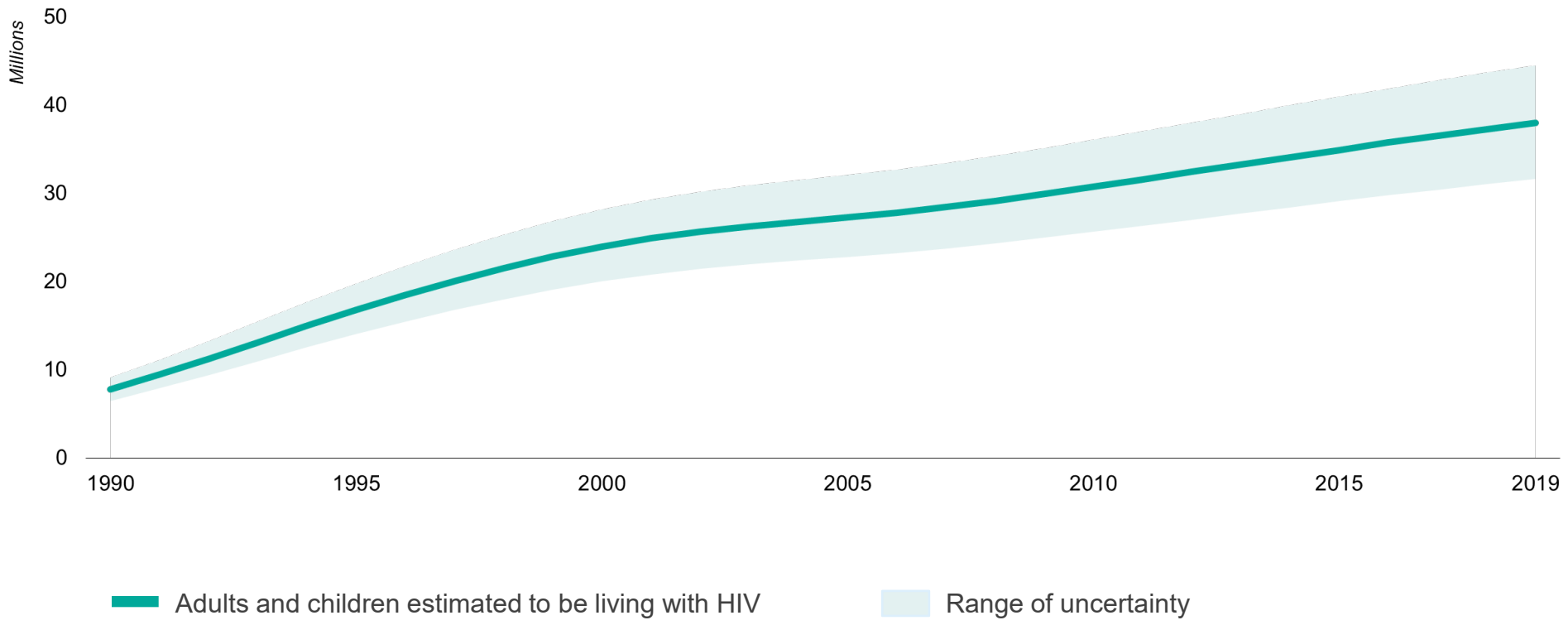
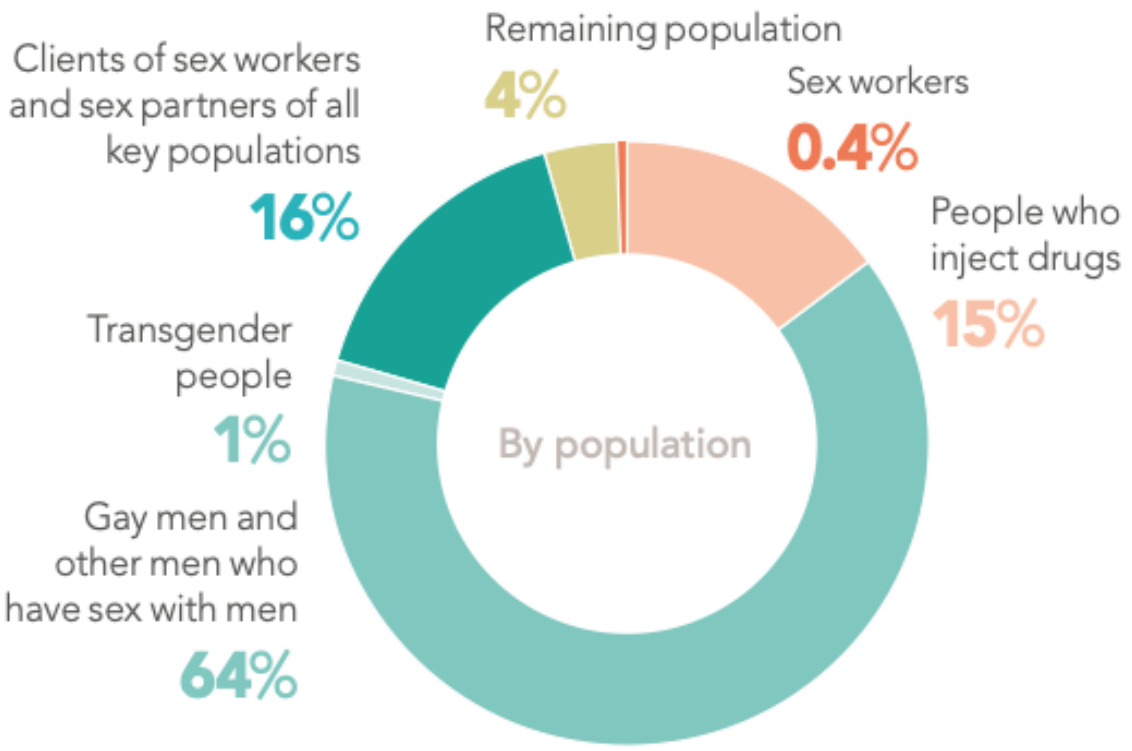
Adults and children estimated to be living with HIV | 1990–2019

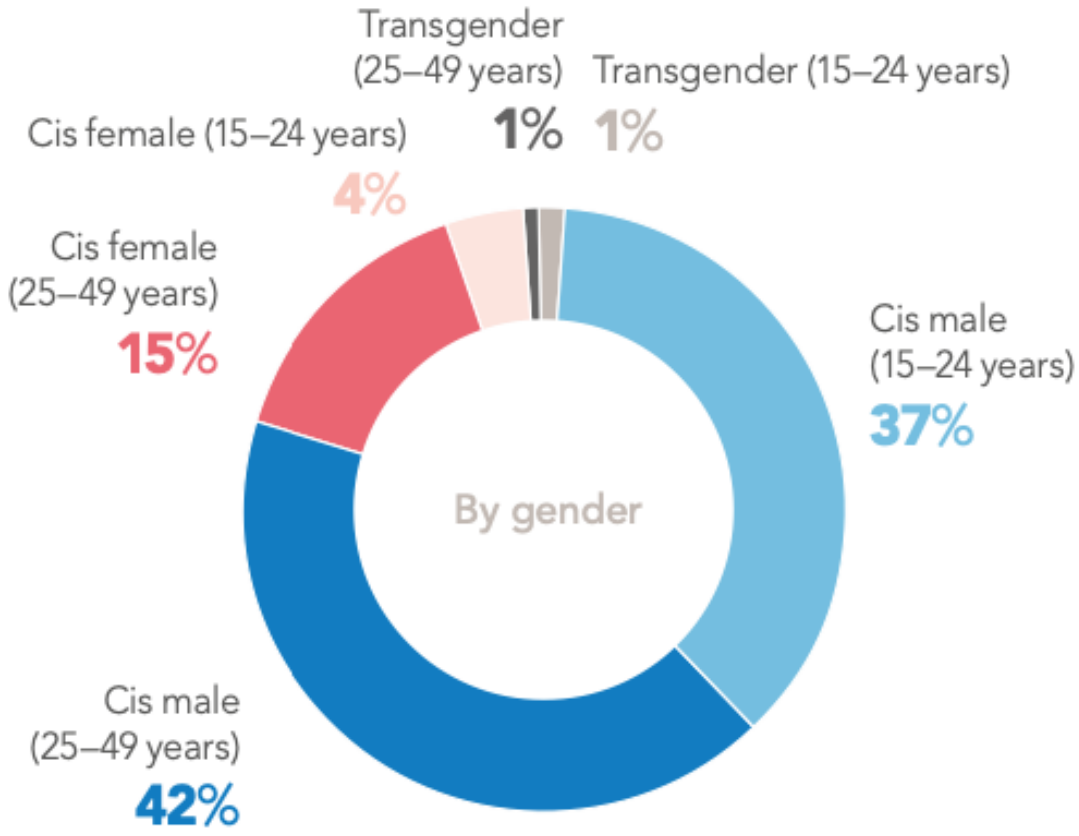


UNAIDS

Adults and children newly infected with HIV | 1990–2019

Western and central Europe and North America



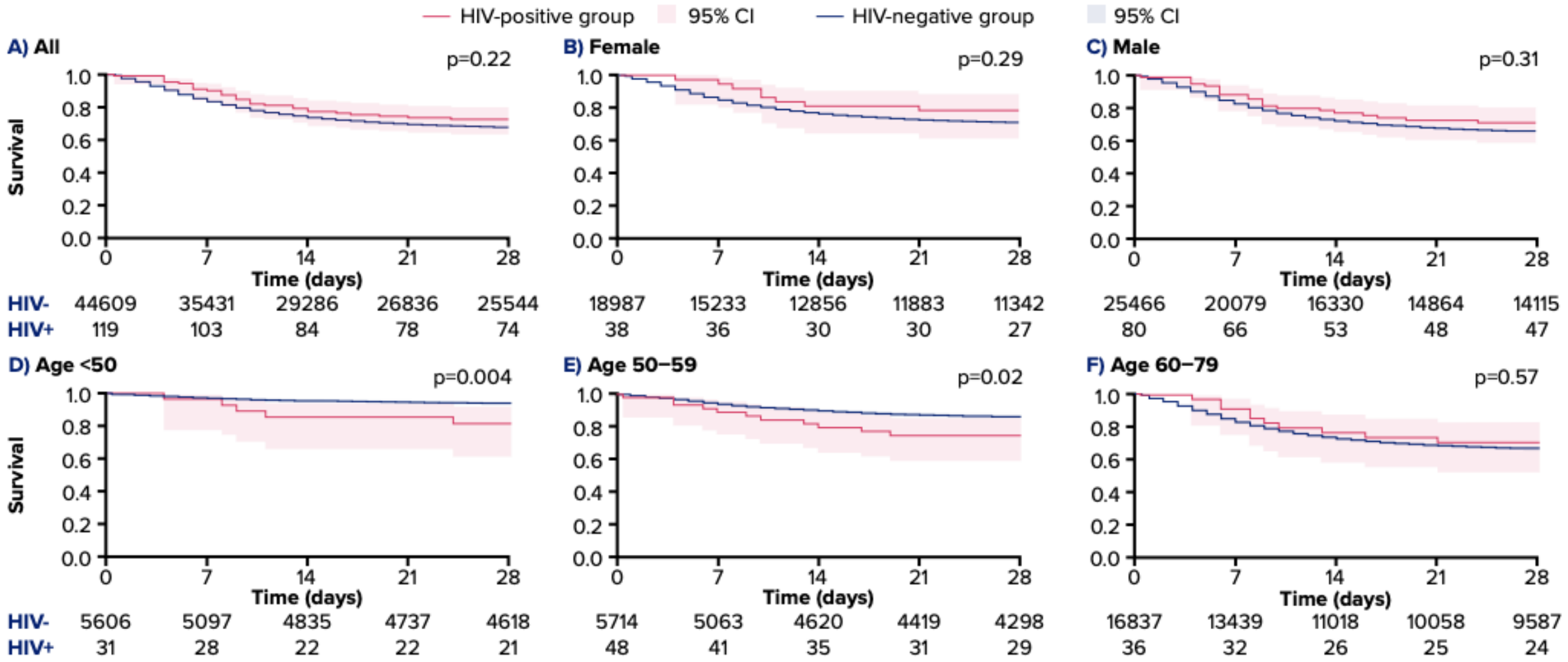


What do we know about COVID-19 in Persons Living with HIV?

Summary of Case Reports of COVID-19 in Persons with HIV

Country	Author	Conclusion	COVID cases in PLWH	Deaths
China	Guo W et al. Lancet 2020	PWH have similar risk as the general population	8	1
	Wu, Q et al. J Med Virol 2020	New Diagnosis of HIV during Pandemic	2	0
	Zhu F et al. J Med Virol. 2020	PWH are vulnerable	1	0
	Zhao, J et al. CID 2020	Negative PCR tests in patients, suggest that PLWH exposed to the virus may be symptomatic but test negative	1	0
Germany	Haerter G etl al. MedRxiv 20..	76% of PWH have mild disease	↓ 33	3
Italy	Gervasoni C et al. CID 2020	PWH not a greater risk	47	2
South Africa	Davies MA et al. MedRXIV 2..	2-fold increased risk of death from COVID-19 in PLWH irrespective of viral suppression, similar increase in patients with TB. Persons on T..	↑ 3,978	115
Spain	Amo JD Annals of Internl Me..	Risk of COVID-19 diagnosis was lower in the HIV-positive population	↓ 236	20
	Vizcarra P et.al. Lancet 2020	Lower CD4 has higher risk of complication	↓ 51	2
	Blanco J et al. Lancet HIV 20..	Recognize new diagnosis of HIV	5	0
Turkey	Aydin OA at al. J Med Virol 2..	Measured SARS-CoV2 antibodies before discharge, present in 2/4 pts tested, patient with comorbidities had worse outcomes	4	1
Uganda	Baluku, J et al. J Med Virol 2..	Importance of paying attention to COVID-19 mimics in low income areas	1	
United Kingdom	Child K. et al CID 2020	Hospitalized patients had low median CD4/ substancial morbidity	18	5
USA	Sigel K. et al. CID 2020	Risk of severe disease comparable to the general populaton	88	18
	Richardson, S et al. JAMA 20..	0.8% of total patients in this series had HIV	43	
	Shalev N et al. CID 2020	7/8 deceased were receiving tenofovir prodrug at time of death 4> 65yo and 4 patients between age 50 and 65	31	8
	Okoh A et al. JAIDS 2020	Patients that died were elderly with multiple comorbidities	27	2
	Karmen-Tuoh, S et al. JAIDS ..	No difference in clinical presentation, course including thrombotic events and myocardial infarction	21	
	Suwanwongse K. et. al. J Me..	Hospital in South Bronx, known for poverty. Patients with low CD4 had a higher mortality rate. HIV-related T cell suppression does not ap..	↑ 9	7
	Ridgway JS et al. AIDS Patie..	All survived, 1/5 presented with tachycardia, test positive 3 days later	5	0
	Patel RH et al. J Med Virol 2..	Speculate on possible benefit on ART on COVID19, hence less severe disease	1	
	Argenziano MG et al. BMJ 20..	Age, BMI and HIV or renal disease associated with death		
	Goyal P et al NEJM 2020	None	7	

HIV-positive status associated with increased risk of 28-day mortality among hospitalized patients under 60years old with COVID-19



P values represent log-rank tests. Plots D, E and F include only individuals from age groups <50 years, 50–59 years and 60–79 years.

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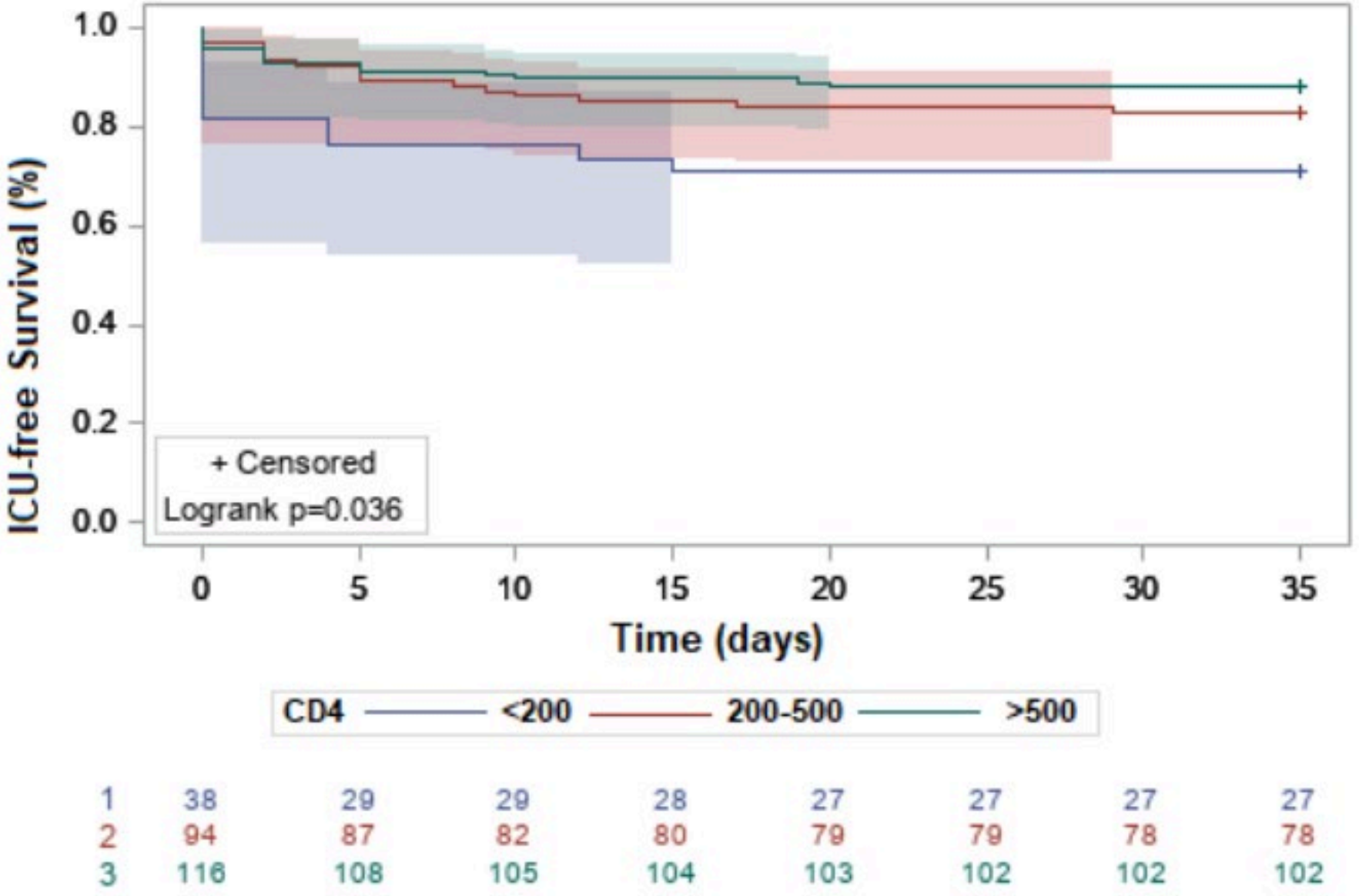
Anna Maria Geretti et. al. CID. 2020

ICU-free survival curves by CD4 groups



Dandachi D. et. al. CID. 2020

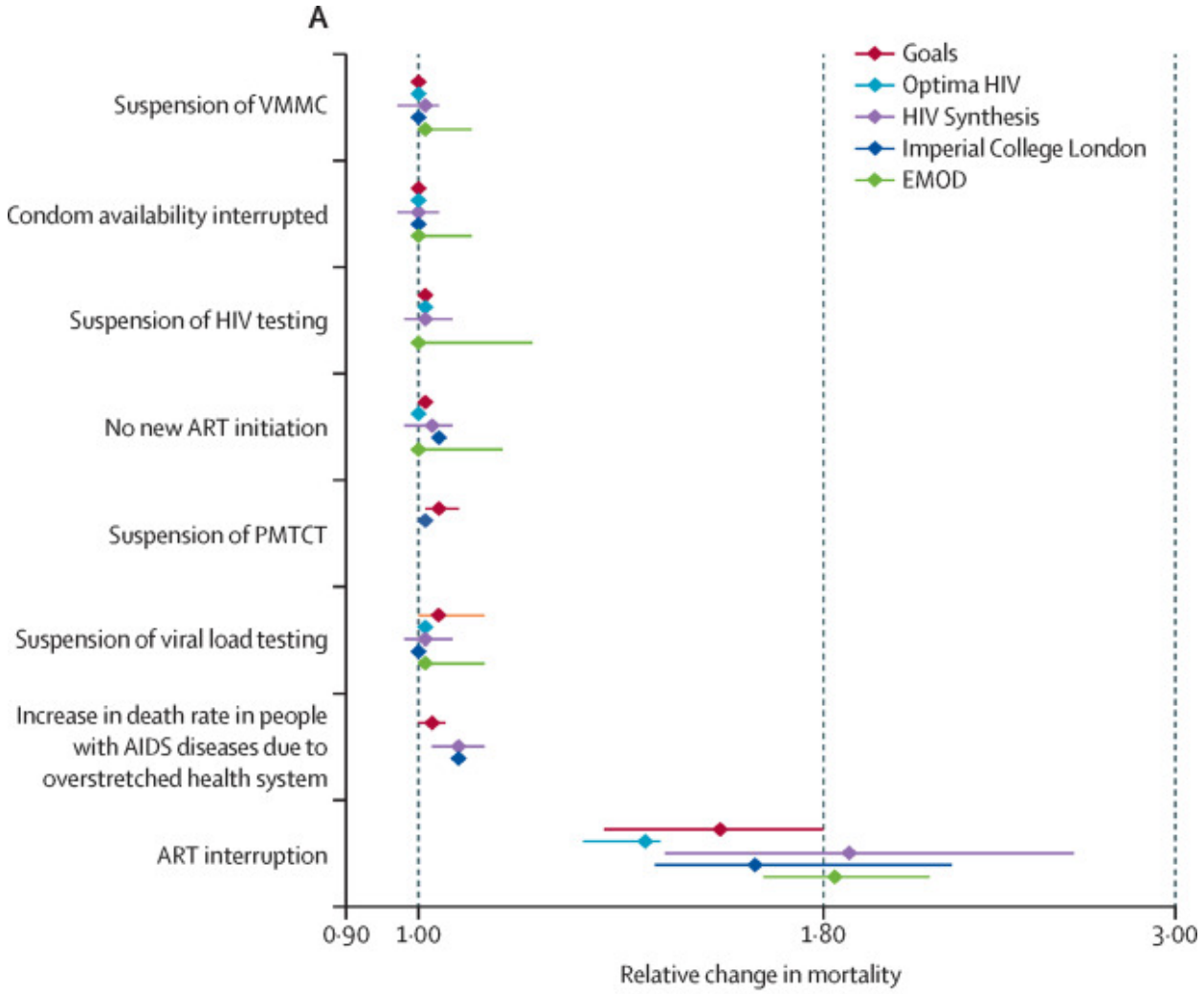
“Our progress towards ending AIDS as a public health threat by 2030 was already off track before the COVID-19 outbreak.

Now this crisis has the potential to blow us even further off course.

Modelling conducted on behalf of UNAIDS and the World Health Organization has shown that a six-month disruption to medical supplies could result in an additional 500 000 AIDS-related deaths in sub-Saharan Africa alone by the end of 2021”.

Winnie Byanyima
UNAIDS Executive Director

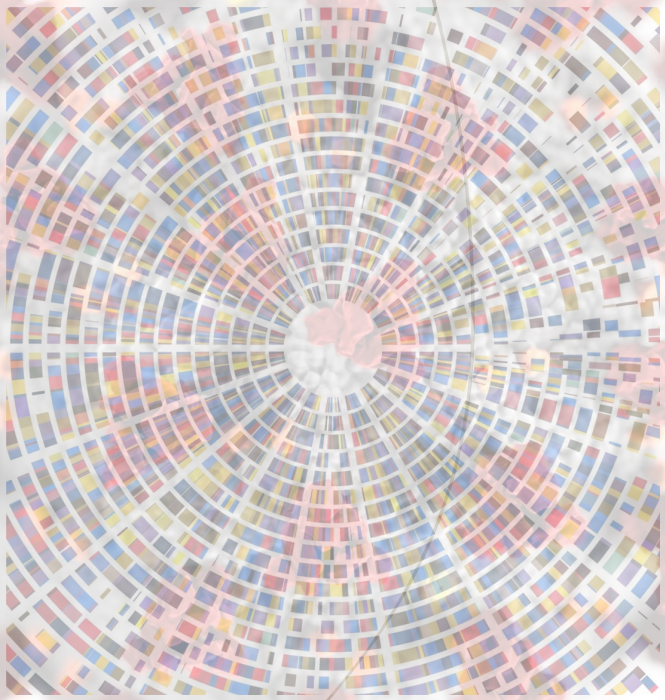
Predicted relative change in HIV mortality in 1 year from April 1, 2020, from a 6-month disruption of specific HIV services in sub-Saharan Africa, for 50% of the population



1·63 times (median across models; range 1·39–1·87) increase in HIV-related deaths over a 1-year period compared with no disruption.

Britta L. Jewell et. al. The Lancet HIV. September 2020

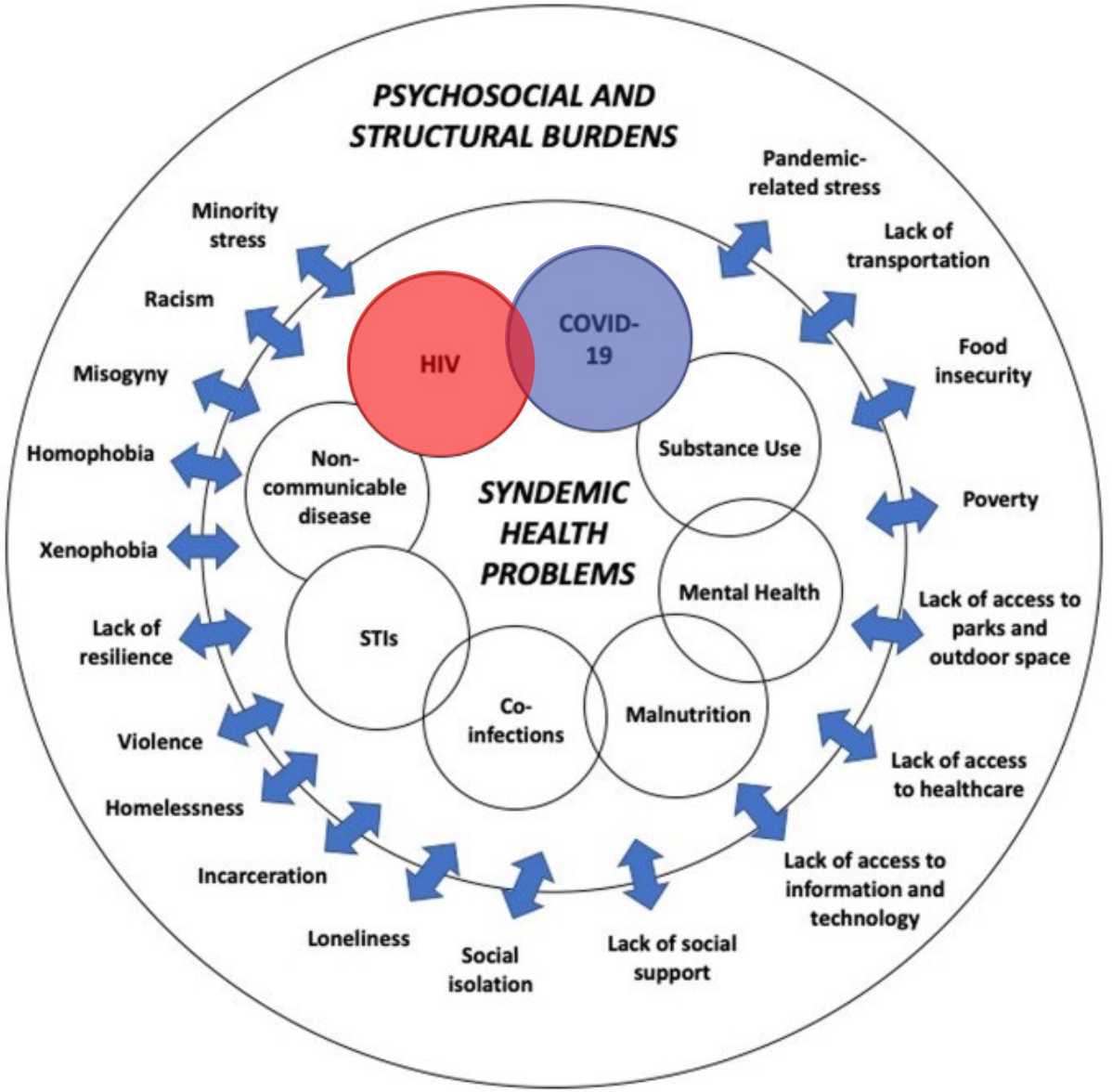
HIV Service Delivery and Social Disruption



What has been the impact on

- HIV-screening?
- HIV continuity clinic?
  - Role for Telemedicine?
- HIV viral suppression?
- Mental health care?
- HIV research?

A syndemic conceptualization of HIV & COVID-19 co-infection in people living with HIV



Shiau s et al. AIDS Behavior 2020

The social impact of SARS-CoV-2

- Shifts in social interactions
- Shifts in national economies
- Provision of preventative health services across the world
- Concern for greater effects in economically disadvantaged communities

Barriers and Challenges to the HIV Care Continuum

- Reduced access to HIV testing
- Timely linkage to care
- Allocation of economic resources and research efforts for HIV care could be diminished
- Hindrance of ART continuation

Hongbo Jiang et. al. The Lancet HIV. April 2020

Curated health policy research and original commentary from across the JAMA Network

In the News | COVID-19

Agency Warns COVID-19 Threatens Access to HIV Medications

Joan Stephenson, PhD[1]

Author Affiliations

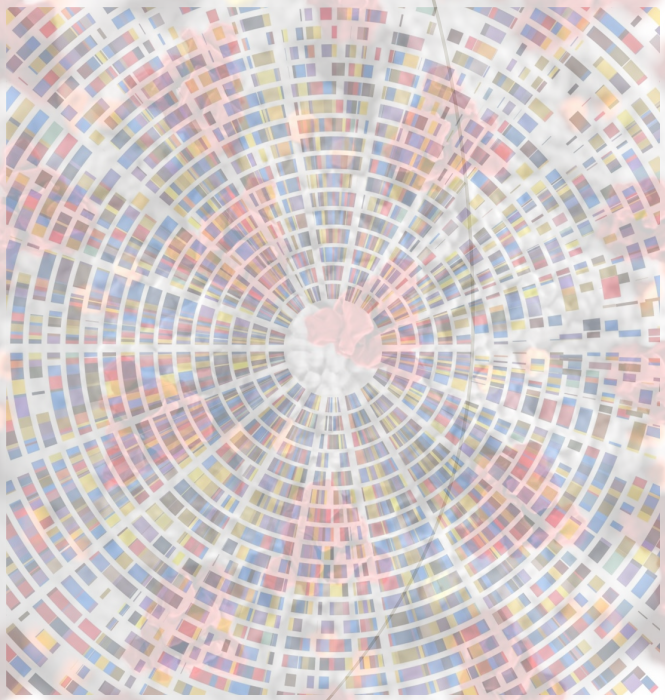
A total of 73 countries—more than one-third of the world's nations—warn that they are at risk of running out of life-saving antiretroviral (ARV) medications because of disruptions to supply lines and other problems stemming from the COVID-19 pandemic.

Moreover, 24 of the 73 countries report already having "critically low stocks" of ARVs or disruptions in the supply of these medicines. These findings, announced earlier this month, are from **a survey** conducted by the World Health Organization (WHO) following a **modeling exercise** that the WHO and the Joint United Nations Programme on HIV/AIDS (UNAIDS) convened in May.

The WHO noted that in those 24 countries currently experiencing supply shortages, an estimated 8.3 million people—about one-third of all people receiving HIV treatment worldwide—were receiving ARVs in 2019.

"The findings of this survey are deeply concerning," said WHO Director-General Tedros Adhanom Ghebreyesus in a statement. "We cannot let the COVID-19 pandemic undo the hard-won gains in the global response to this disease."

HIV Service Delivery and Social Disruption



What has been the impact on

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  - Role for Telemedicine?
- HIV viral suppression?
- Mental health care?
- HIV research?

90–90–90: Treatment for all

There are 38 million people living with HIV

81% know they are HIV-positive
The rest do not

Two out of three people living with HIV are on antiretroviral therapy

Only 59% of people living with HIV have undetectable levels of the virus

90–90–90 HIV treatment targets

30 million people on treatment by 2020

90% of people living with HIV know their status

90% of people who know their HIV-positive status are on antiretroviral therapy

90% of people on antiretroviral therapy are virally suppressed

Key populations who remain highly at risk for HIV

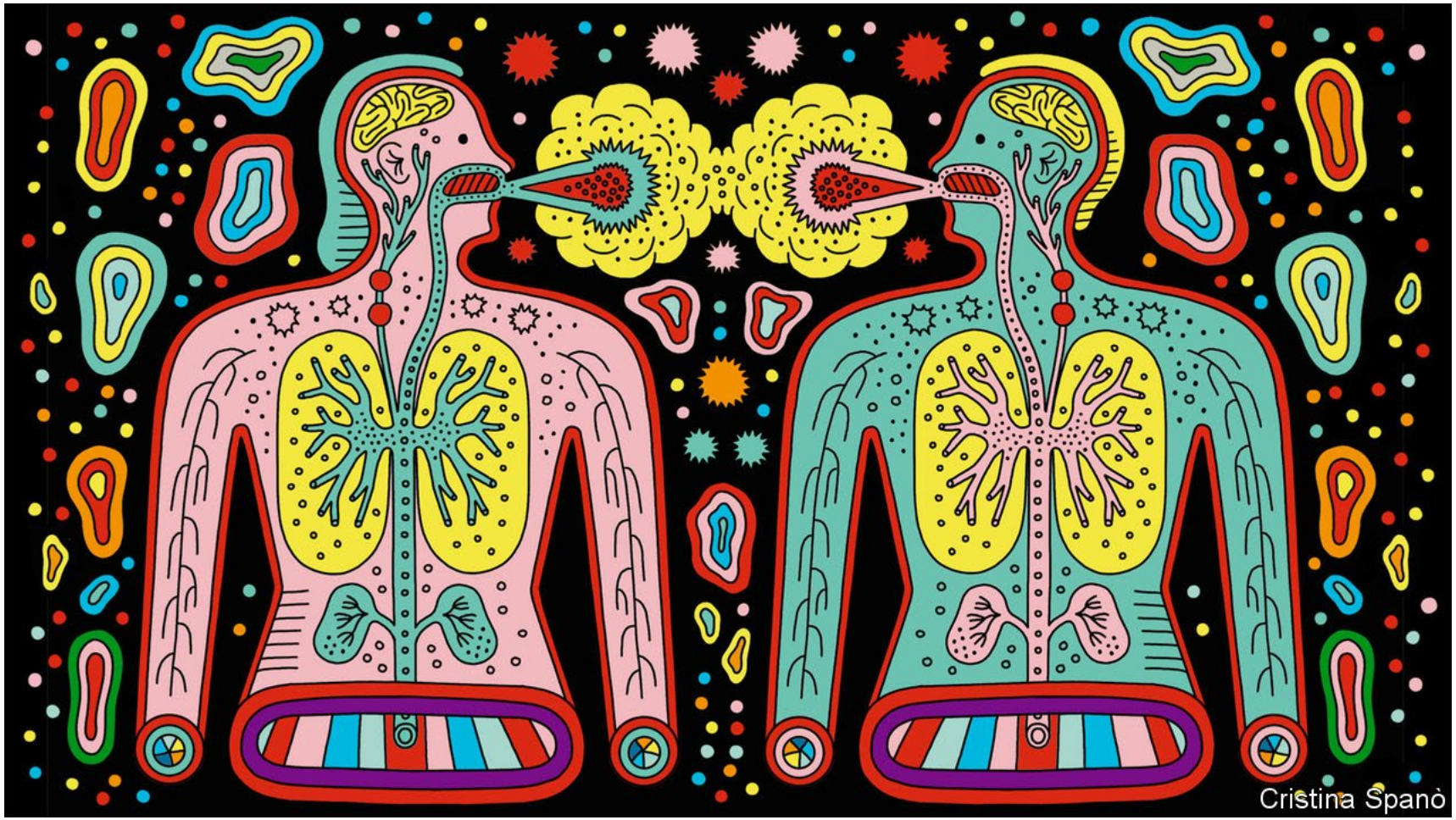
- MSM
- Transgender
- Prisoners
- Inject drug users
- Sex workers
- Migrants
- Young women and girls in sub-Saharan Africa

Factors that place our patients at risk for COVID-19

- Digital divide
- Disproportionate burden of comorbidities
- Environment and pollution exposure
- Socioeconomic issues
- Housing insecurity
- Frontline workers
- Racial profiling

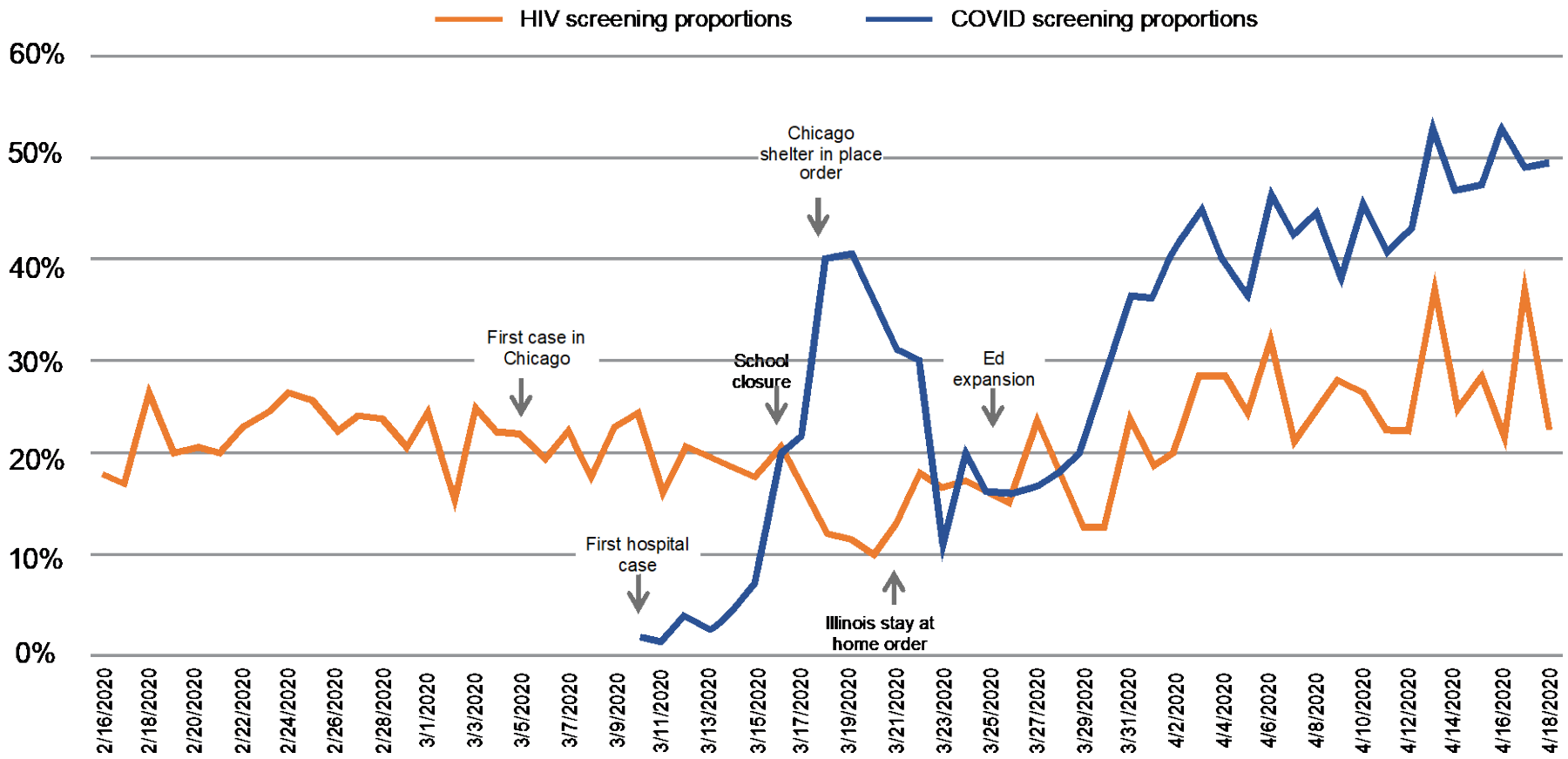
HIV Screening and care during the pandemic

HIV/AIDS **SARS-CoV-2**



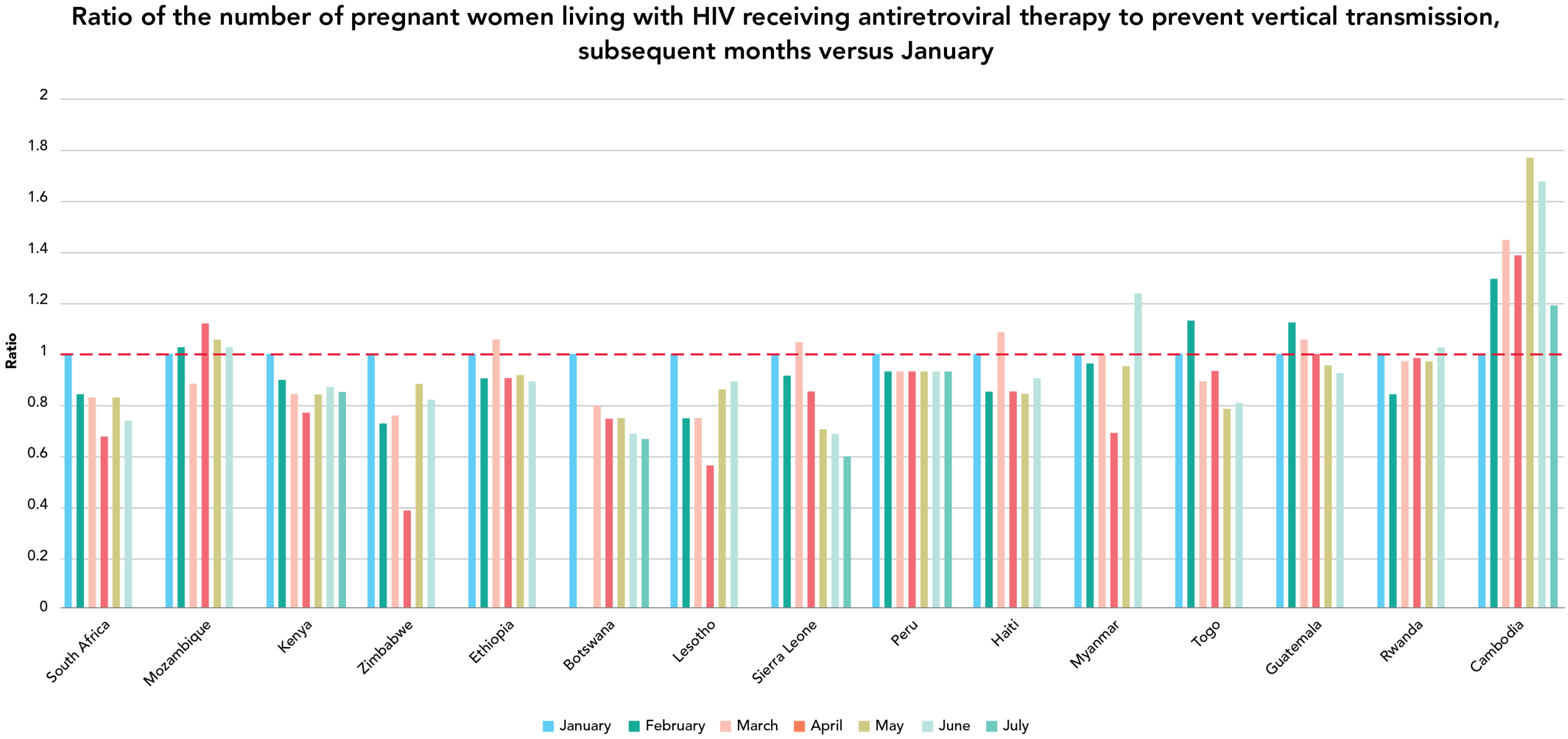
https://www.economist.com/briefing/2020/06/06/how-sars-cov-2-causes-disease-and-death-in-covid-19. Art by Cristina Spano

Routine Screening for HIV in an Urban Emergency Department During the COVID-19 Pandemic



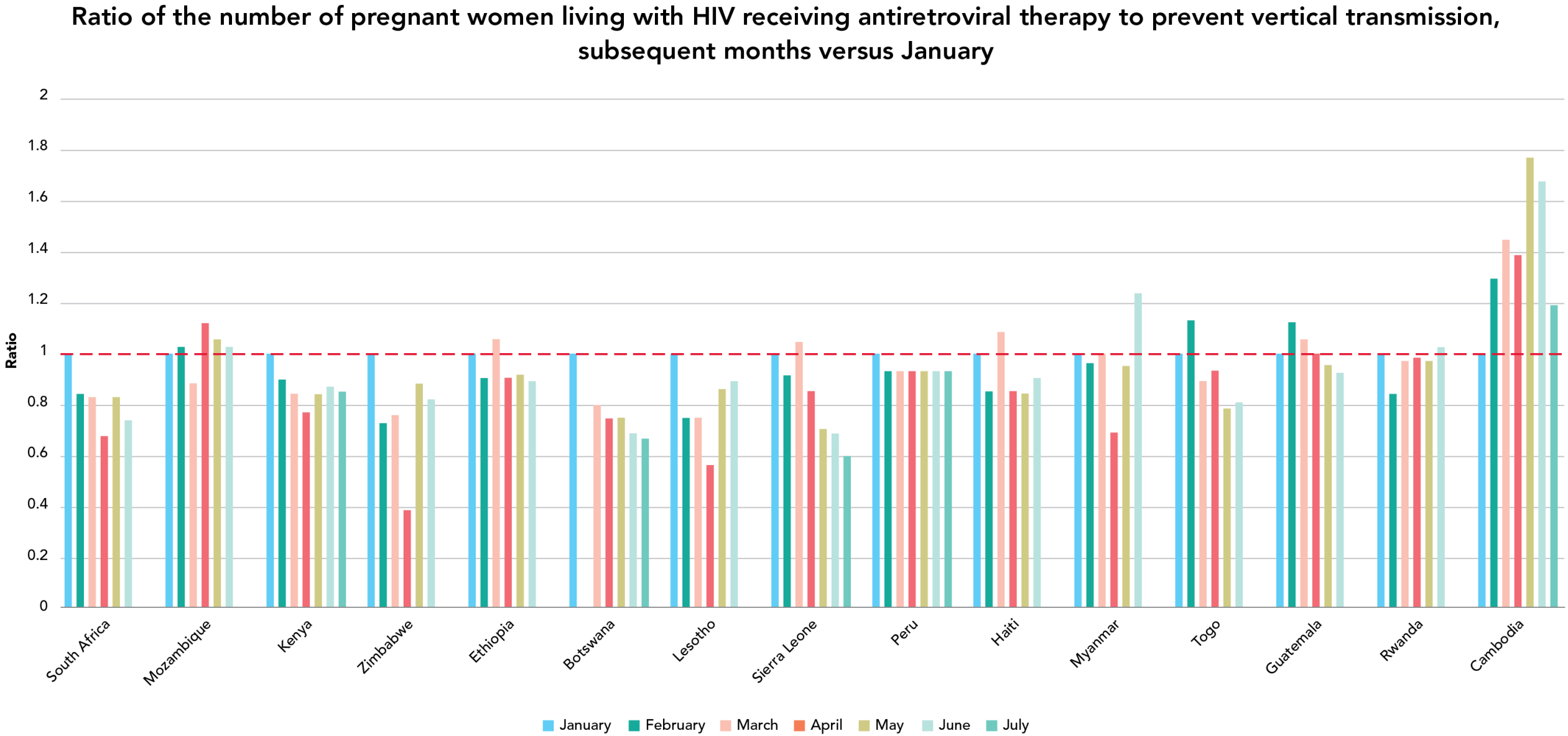
Stanford et al. AIDS and Behavior May 2020

COVID-19's impact on HIV vertical transmission services reversed



UNAIDS. COVID-19's impact on HIV vertical transmission services reversed. October 27th 2020

COVID-19's impact on HIV vertical transmission services reversed

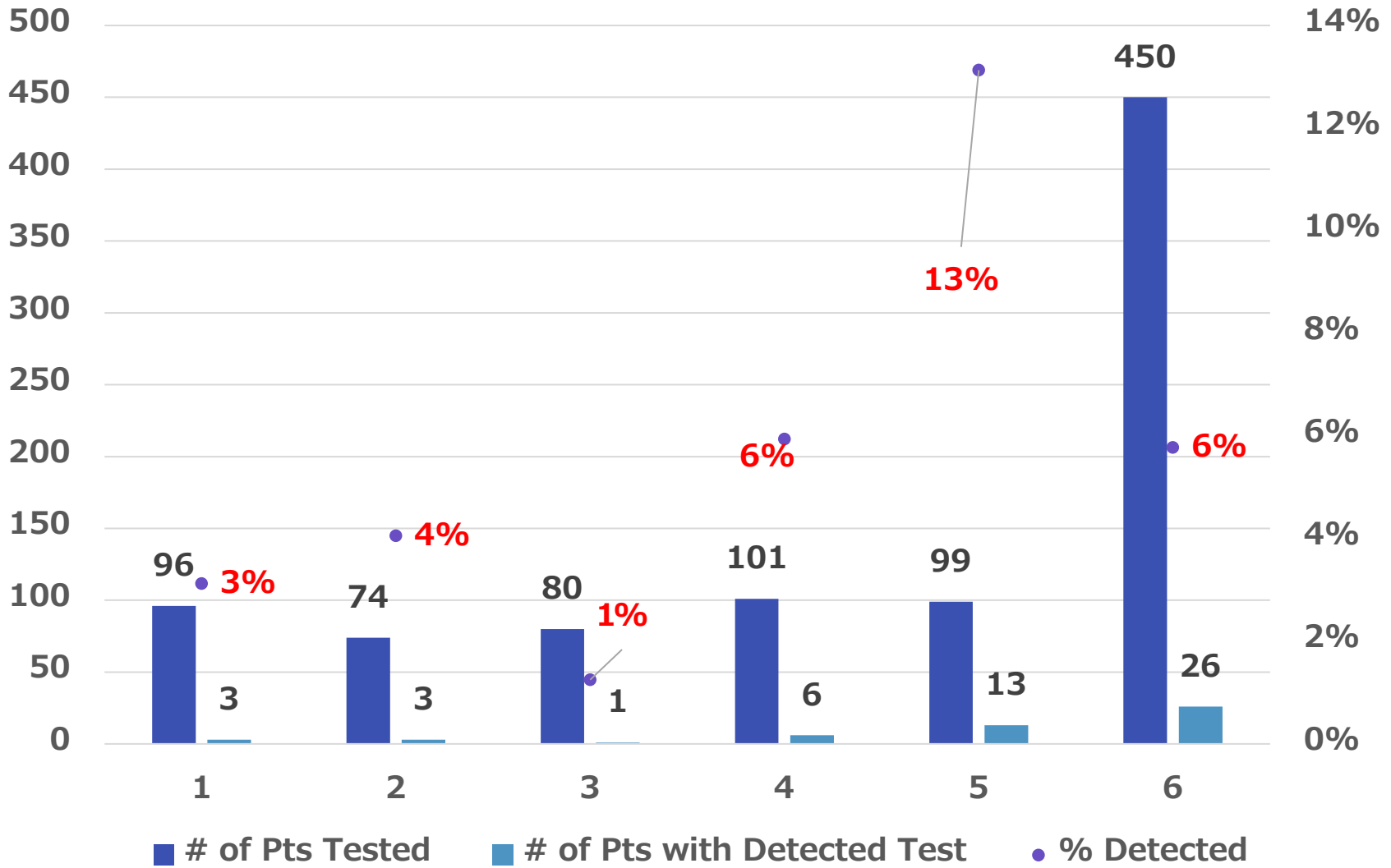


UNAIDS. COVID-19's impact on HIV vertical transmission services reversed. October 27th 2020

HIV Care at a Large Southeastern Academic Comprehensive Care Clinic

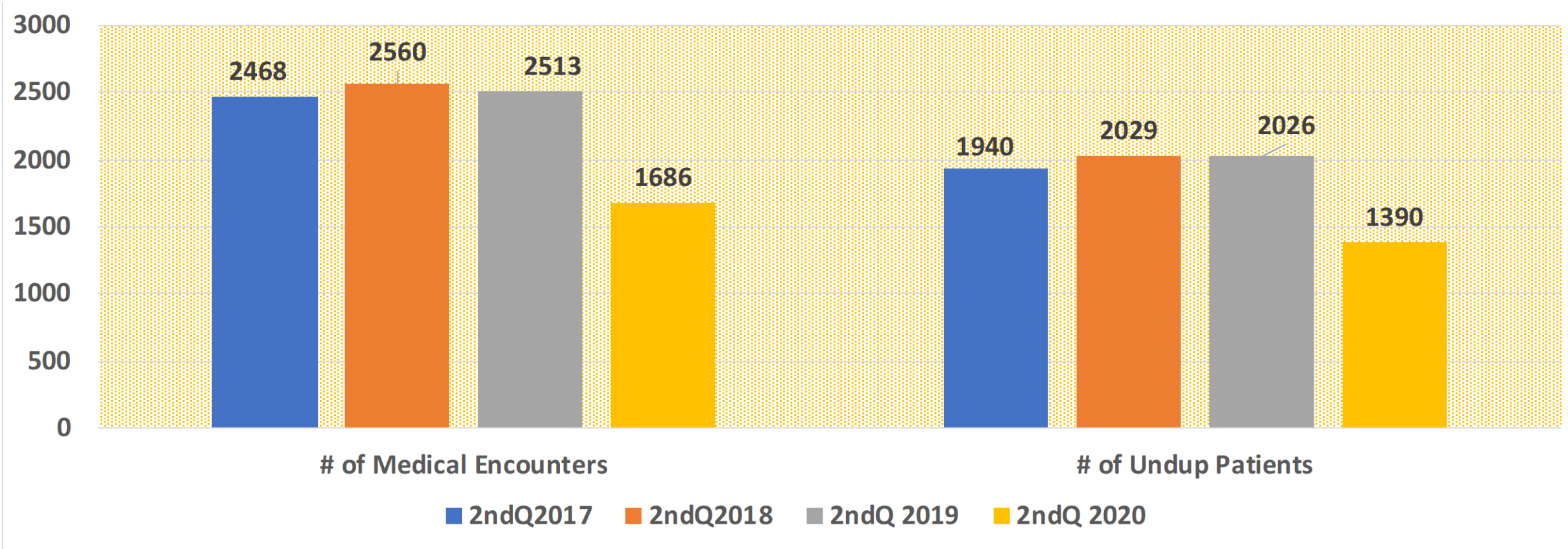
- 3780 patients annually
- 49% Caucasian
- 43% African American
- 7% Hispanic
- 53% are economically disadvantaged with income less than $20,000/year
- The clinic was operating at reduced capacity from March 31st to 4/30/2020. We converted to telehealth visits on 3/17/2020 and went back to in-person visits on 7/27/2020
- Telehealth visits were provided as an alternative and one provider remained available in clinic for patients who needed to be seen and were willing to present for care

Number/Percent of Patients with Detected COVID-19 Test



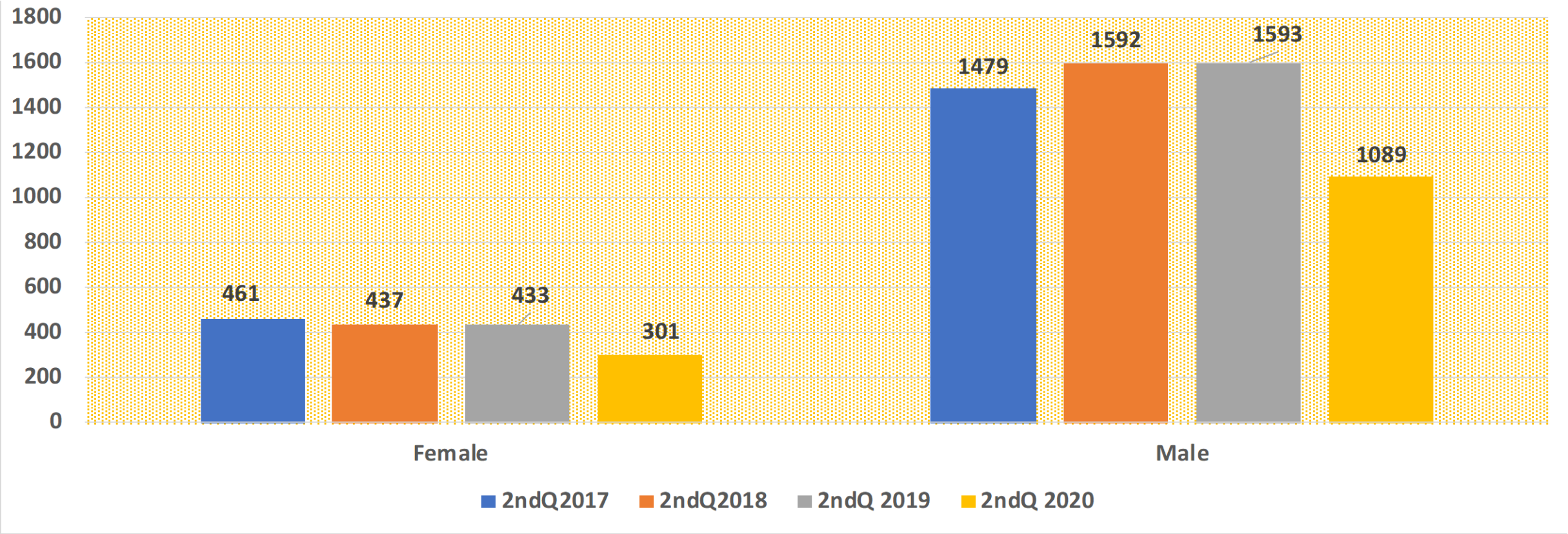
Norwood J, Asghar Kheshti et. al. Manuscript in preparation

Outpatient Medical Encounters (Vanderbilt Comprehensive Care Center) COVID-19 Affect



Norwood J, Asghar Kheshti et. al. Manuscript in preparation

Outpatient Medical Encounters (Vanderbilt Comprehensive Care Center) COVID-19 Affect, by gender



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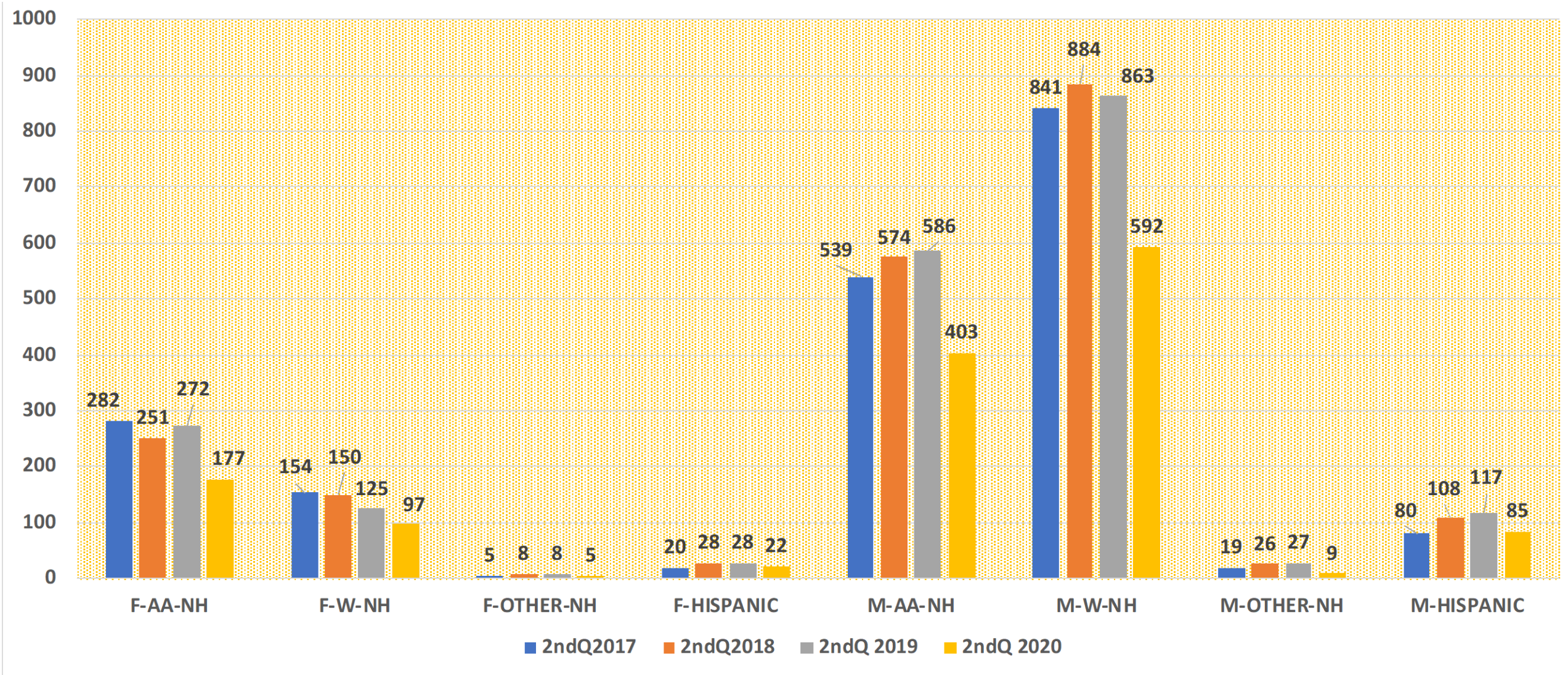
Outpatient Medical Encounters (Vanderbilt Comprehensive Care Center)
COVID-19 Affect, by race



Norwood J, Asghar Kheshti et. al. Manuscript in preparation

Publication on Telehealth and HIV

- Complements the standard care
- There is a role for telehealth for the promotion of population health and management of chronic diseases including HIV.
- An alternative to following up with patients who are clinically stable or have difficulty attending their clinic visits/underserved areas with no access to specialty care.

Publication on Telehealth and HIV

Review

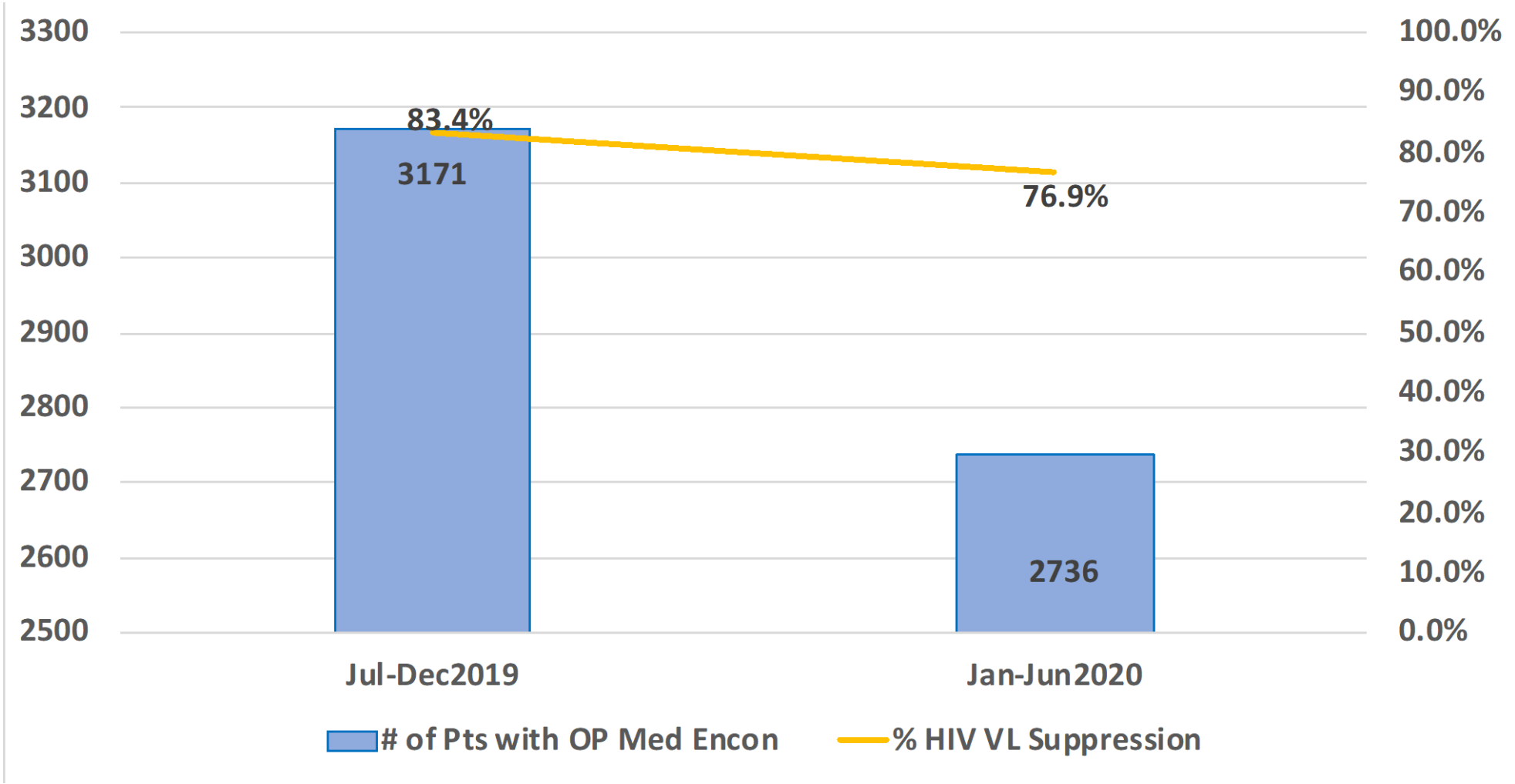
Integration of telehealth services in the healthcare system: with emphasis on the experience of patients living with HIV

Dima Dandachi,[1,2,3] Celine Lee,[3] Robert O Morgan,[3] Shahriar Tavakoli-Tabasi,[4] Thomas P Giordano,[2] Maria C Rodriguez-Barradas[4]

Table 1 Ten points to consider for telehealth implementation

Vision and goals for implementing telehealth services	Improving access to care in remote areas. Cost-saving. Expanding patient pool.
Type of telehealth intervention	Live video replacing face-face clinic. Store and forward, teleconsultation. Telemonitoring. Mobile health.
Services and timeline	Services and sites where telehealth services to be implemented. Patient selection and exclusion criteria. Clear timeline for services implementation.
Telehealth technology and selecting vendors	Videoconferencing software, devices such as stethoscopes, otoscopes and so on, patient monitory devices such as glucometers, blood pressure machines, scales and so on.
Financial plan	Market and self-assessment. Reimbursement. Revenue, cost-saving and long-term sustainability analysis.
Legal aspects	Licensing. Liability. Malpractice. Privacy and security, Health Insurance Portability and Accountability Act compliance.
Training and equipment management	Training providers, identifying leader team, and key roles. Technical assistance.
Marketing	Marketing tools and marketing representatives.
Outcome measures	Setting clinical performance measures and periodic evaluation.
Patient engagement and satisfaction	Effect on patient satisfaction, long-term clinician–patient relationship and ways to maintain patient engagement.

HIV Viral Load Suppression, 6-month measurement period



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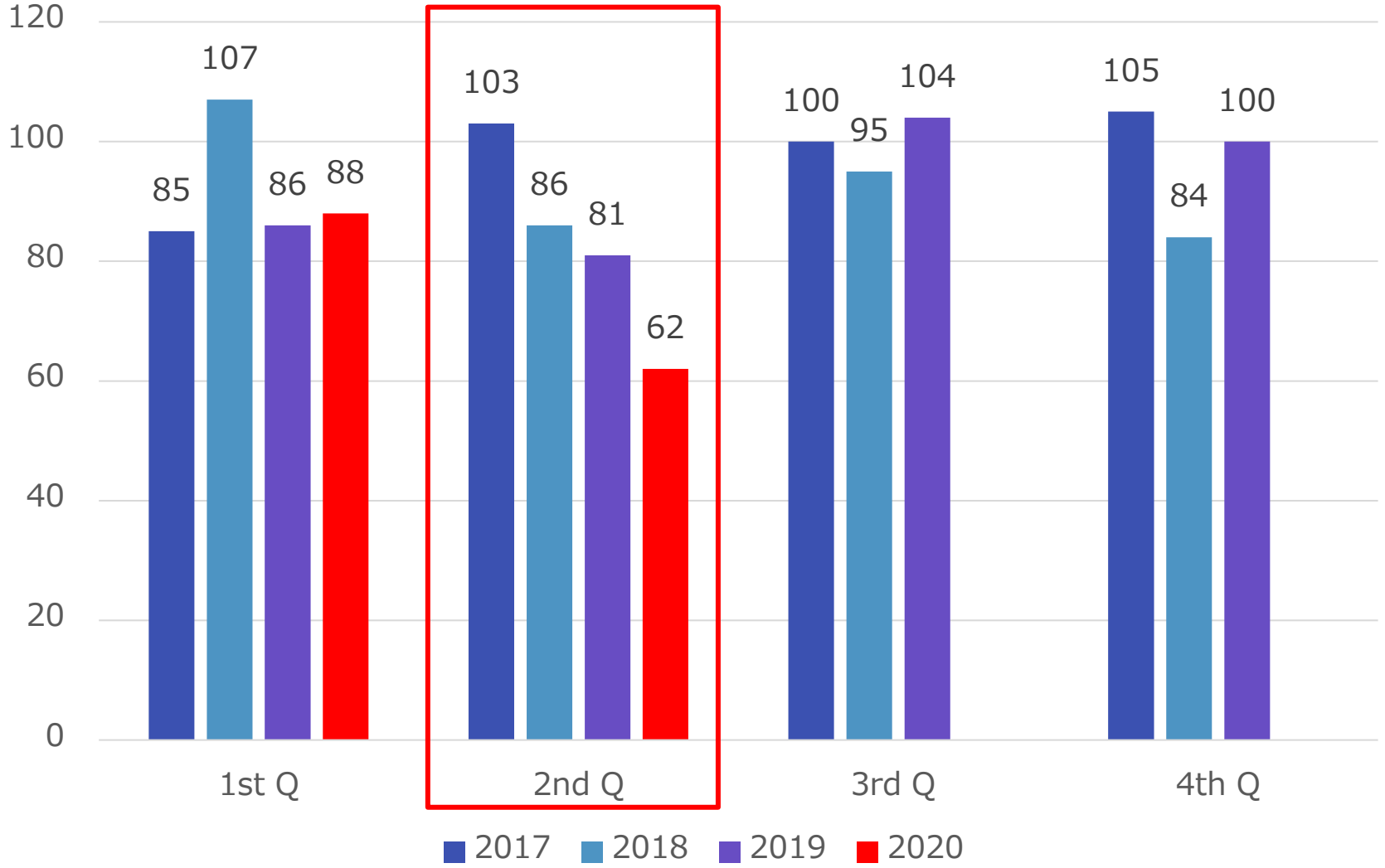
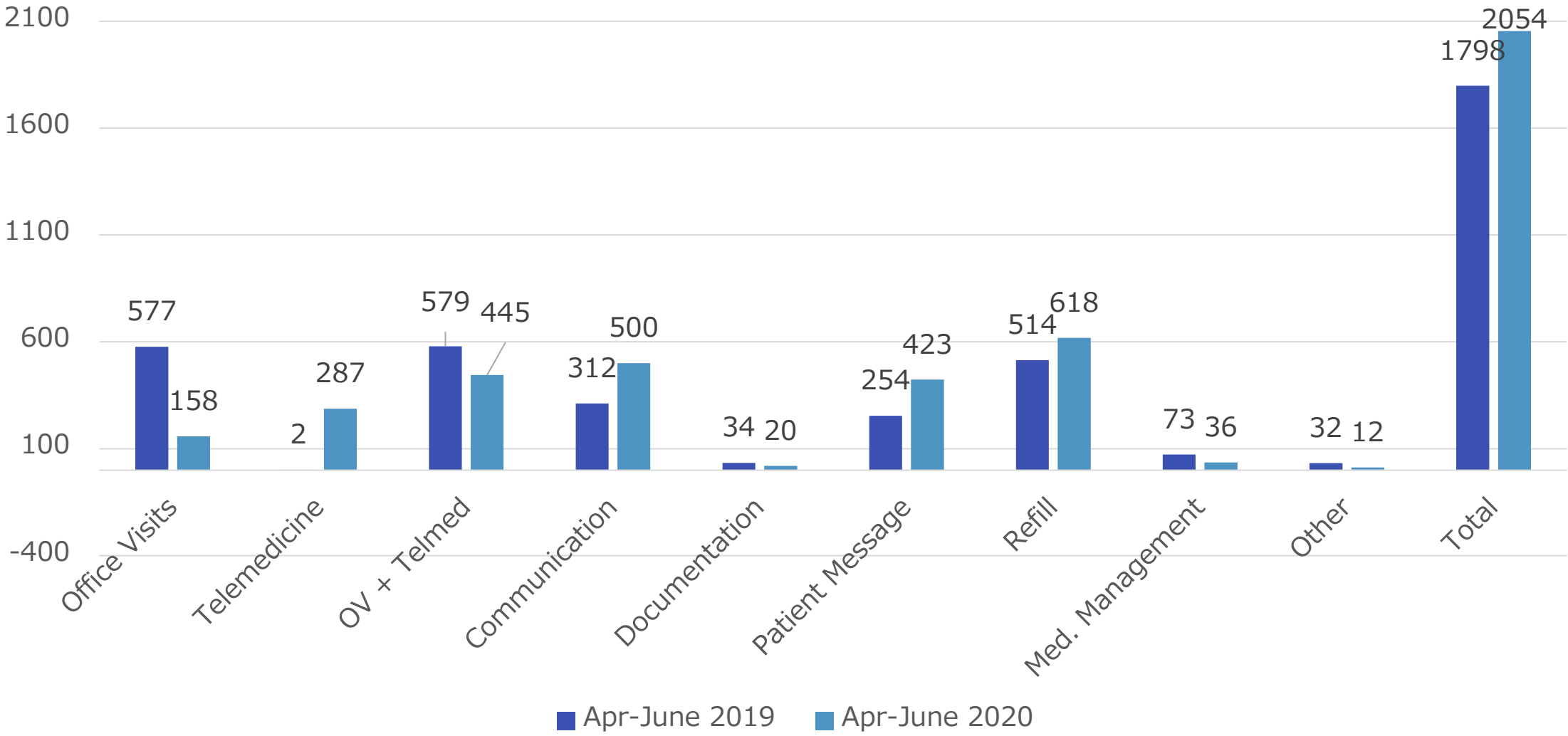
Number of New Patients by Quarter



Norwood J, Asghar Kheshti et. al. Manuscript in preparation

Mental Health Encounters Numbers and Percent Variance



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Summary and conclusions

- Telemedicine has likely helped with access to HIV care during the Pandemic
- Studies are needed to determine whether this is a viable mode to reach those who are travelling from distance regions for appointments
- Encourage and educate our patients to social distance, mask and wash their hands
- Risk factors that are associated with COVID-19 cases are also associated with HIV, this syndemic needs to be recognized and efforts made to address them
- Importance of ART compliance and staying on goal to achieve 90-90-90 and ending AIDS as a public health threat by 2030
- Consider the aggregate of a higher burden of at-risk comorbidities, the pernicious effects of adverse social determinants of health

Acknowledgements

- Jamison Norwood
- Asghar Kheshti
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- Stephen Raffanti
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