



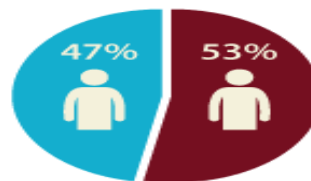
Epidemiologia di HIV nel periodo pandemico

Antonella d'Arminio Monforte

Clinica di Malattie Infettive e Tropicali,
Dipartimento di Scienze della Salute,
Università di Milano, ASST Santi Paolo e Carlo

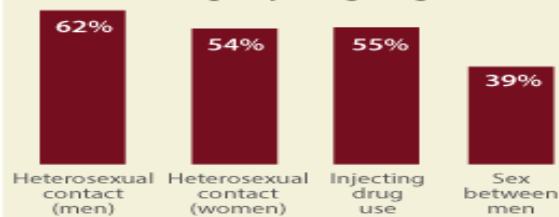
Half of people with HIV in the WHO European Region are diagnosed late.

Early diagnosis results in longer and healthier lives and reduces transmission.

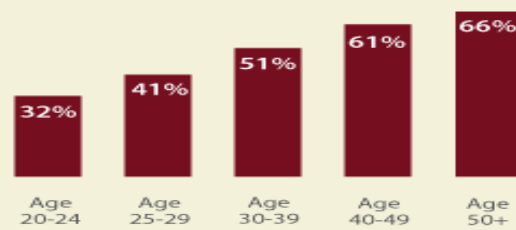


Late diagnosis delays treatment and increases the risk of AIDS and death.

Percentage of people with HIV **diagnosed late** is higher among those infected heterosexually, particularly men, or through injecting drug use.



Percentage of people with HIV **diagnosed late** increases with age and is highest in people over age 50.



Make HIV testing free and easy to access



Ensure rapid HIV treatment and care



Based on data from 40 of 53 WHO European Member States. Source: European Centre for Disease Prevention and Control, WHO Regional Office for Europe. HIV/AIDS surveillance in Europe 2018 – 2017 data. Copenhagen: WHO Regional Office for Europe; 2018.

Test earlier. Treat all.

www.euro.who.int/aids

© WHO 11/2018



World Health Organization
REGIONAL OFFICE FOR Europe

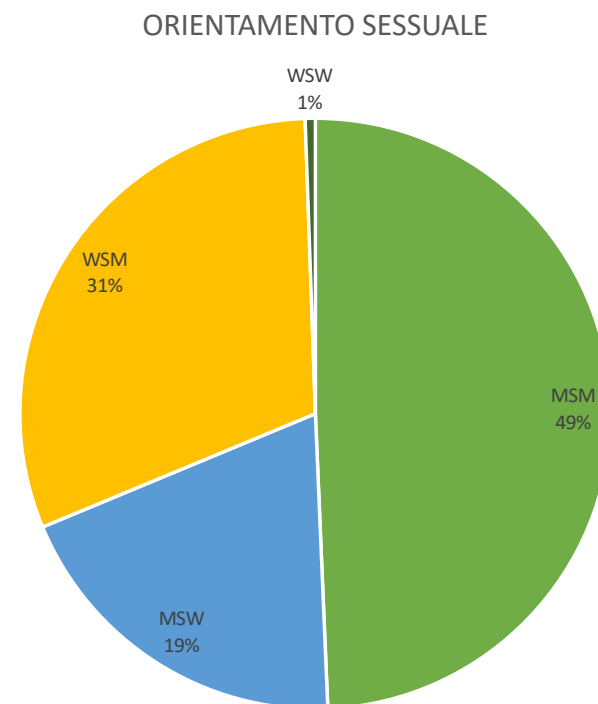
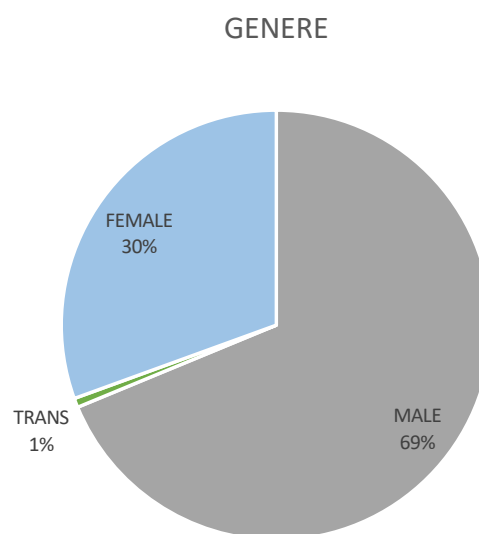
HIV-Indicator Conditions 1	frequenza (%) HIV-ICs sul totale (n=884)	Frequenza (%) di positività HIV per HIV-IC
Gravidanza	386 (43.7)	1(0.3)
Infezione da HBV (acuta/cronica)	120(13.6)	5(4.2)
Infezione da HCV (acuta/cronica)	48(5.4)	3(6.3)
Infezione da HAV	49(5.5)	0,0
Sindrome simil mononucleosica	91(10.3)	6(6.6)
Infezione da M.tuberculosis	41(4.6)	1(2.4)
Polmonite (età<50 anni)	37(4.2)	2(5.4)
Polmonite ricorrente	4(0.5)	0,0
Sifilide	65(7.4)	4(6.2)
Gonorrea	10(1.1)	1(10)
Candidosi esofagea	4(0.5)	1(25)
Herpes zoster (età<60 anni)	4(0.5)	1(25)
Demenza (età< 60 anni)	6(0.7)	1(16.7)
Lesioni cerebrali	4(0.5)	0,0
Linfoma di Hodgkin	2(0.2)	0,0
Linfoma non-Hodgkin	7(0.8)	0,0
Carcinoma anale	1(0.1)	0,0
Carcinoma cervice uterina	1(0.1)	0,0
Malattia invasiva da pneumococco	1(0.1)	0,0
Sarcoma di Kaposi	1(0.1)	1(100)
PJP	2(0.2)	2(100)
Totale	884(100)	18 (2.0)

Distribuzione delle HIV-indicator conditions e frequenza di positività per HIV per condizione in 884 pazienti ospedalizzati nel 2019-20

**La prevalenza HIV: 2.3%
4% se esclusa la
gravidanza .**

Test community-based

- N° utenti tot. **2165**
- Genere:
 - Uomini 1488
 - Uomini Trans 4
 - Donne 661
 - Donne Trans 11
- Orientamento Sessuale
 - **MSM 1068**
 - MSW 420
 - WSM 665
 - WSW 12

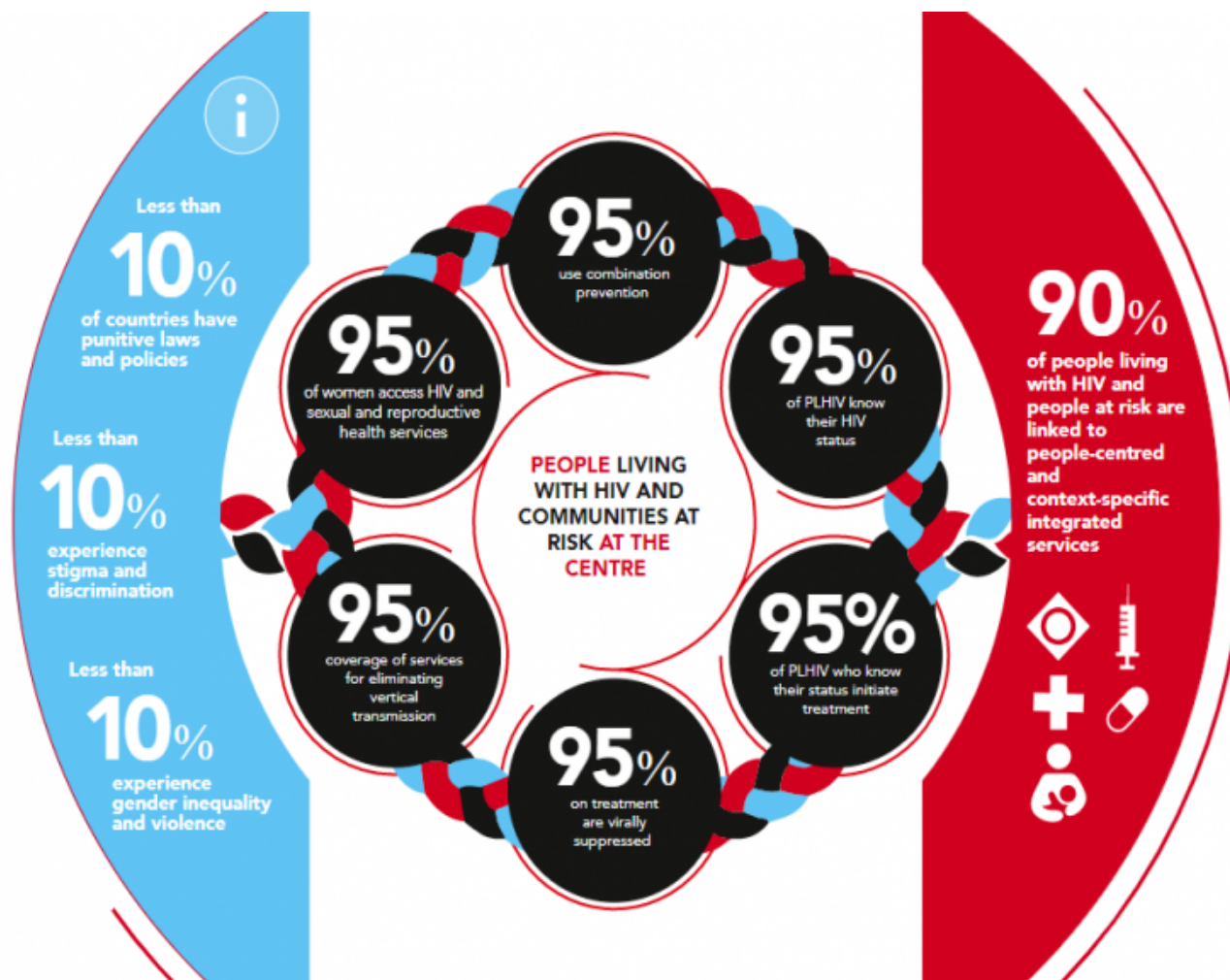


Test community-based

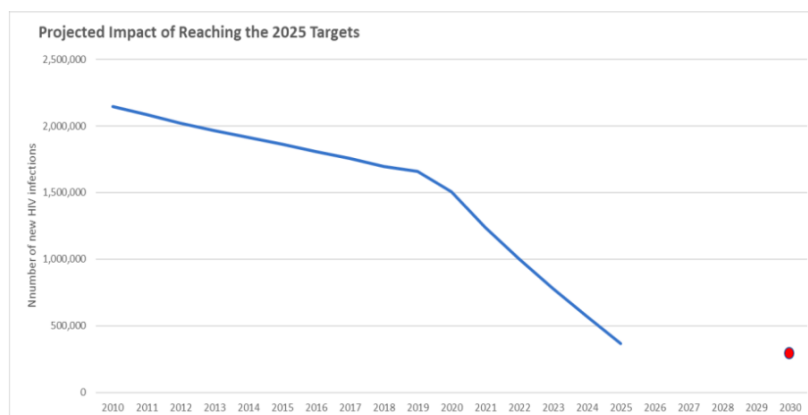
- Risultati:

- Test reattivi HIV: 18 (incidenza 0,8%)
 - MSM 17 (incidenza 1,6%)
- Test reattivi alla sifilide 34 (incidenza 3,7%)
 - MSM 34 (incidenza 6,2%)
 - Numero di reinfezioni 16

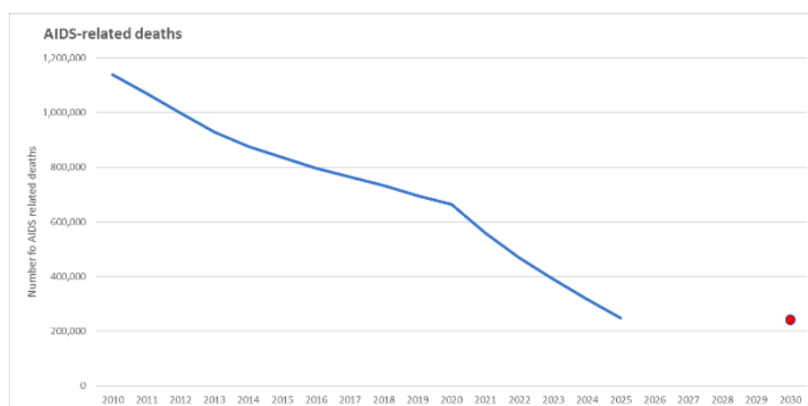
WHO END OF AIDS BY 2030



Modelled Impact of Delivering on the Strategy



**Annual HIV infections
to be reduced from 1.7
million in 2019 to
370,000 in 2025**



**Annual AIDS-related
deaths, including
tuberculosis deaths, to
be reduced from
690,000 in 2019 to
250,000 in 2025**

**HIV and Covid epidemics:
what impact of Covid on HIV
diagnosis and care?**

New diagnoses of HIV in 2020-2021

COVID EPIDEMICS

- Isolation
- Fear to go to hospital
- Out patients clinics closed
- Check points closed

U=U

- No transmission from people on effective cART

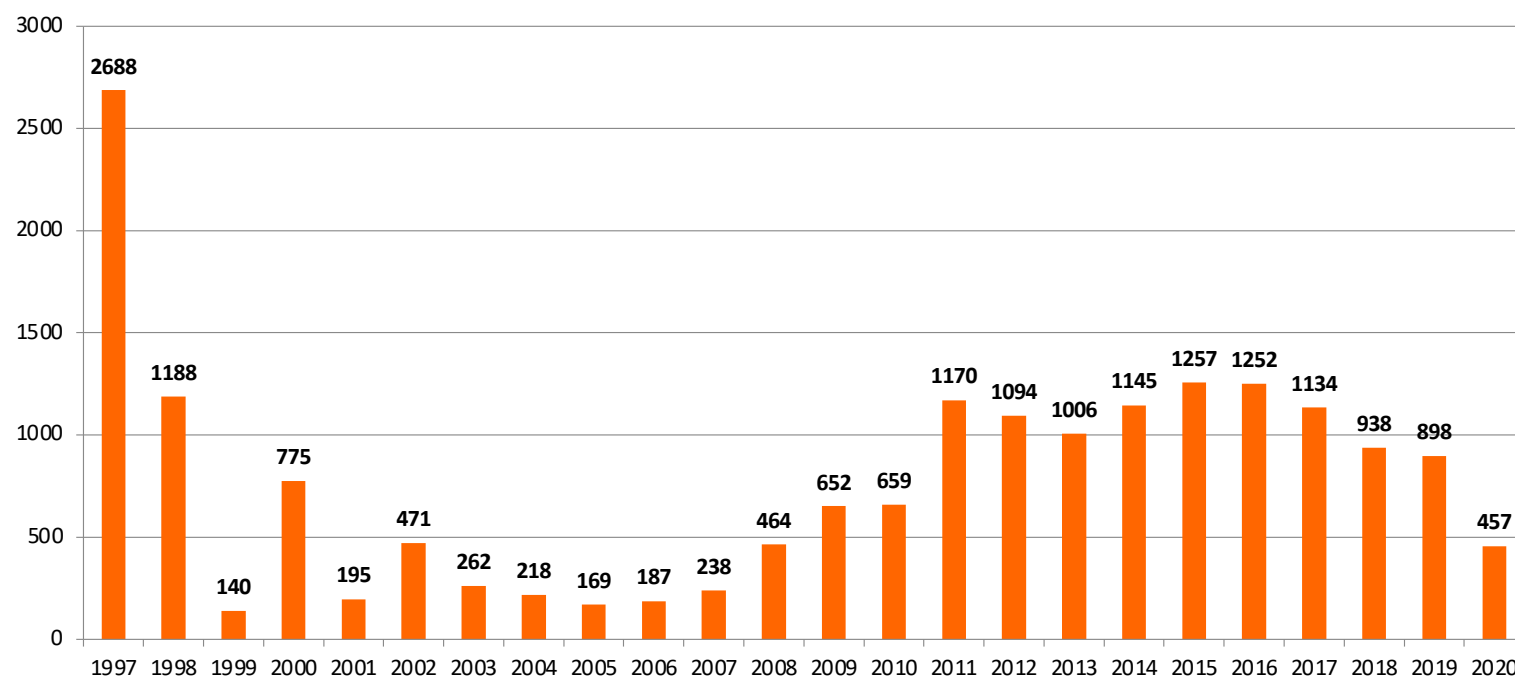
PReP

- Prevention in people at risk

- **SHARP REDUCTION OF NEW HIV DIAGNOSIS**

- **IS IT A REAL PHENOMENON?**

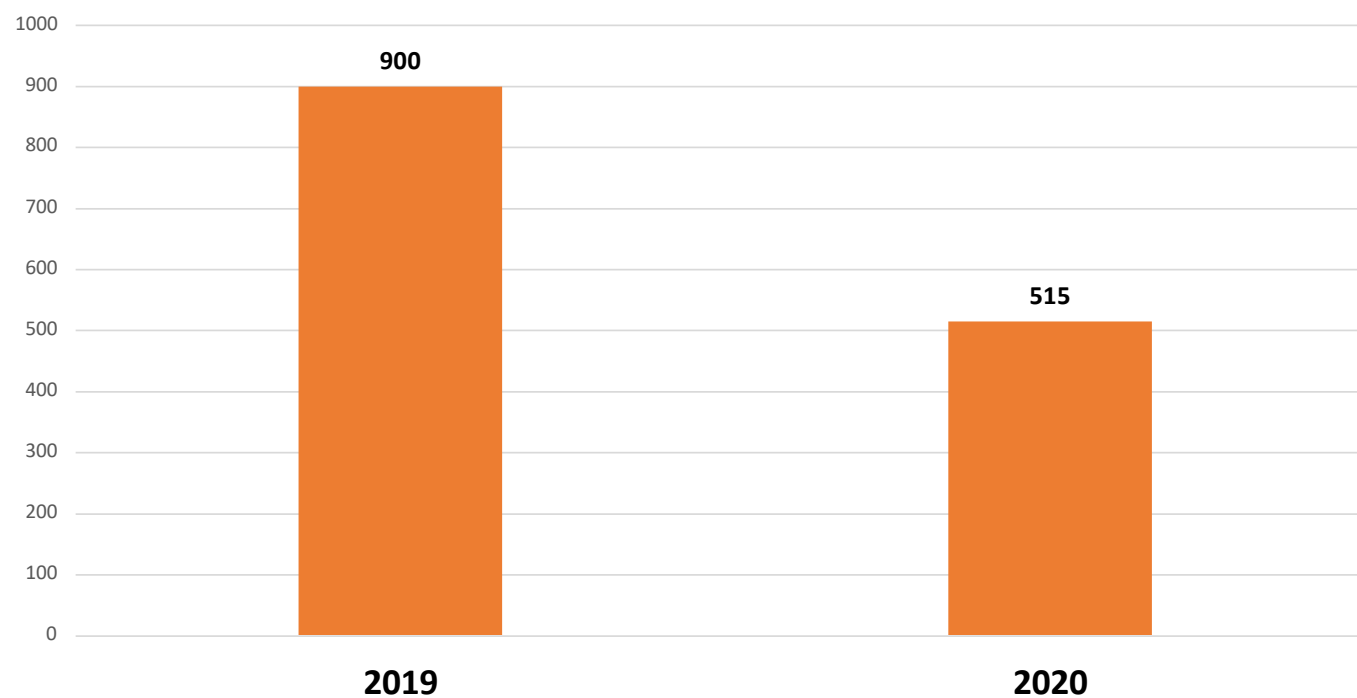
Number of patients enrolled by calendar year 18660 Icona patients



Jan 2021 Report

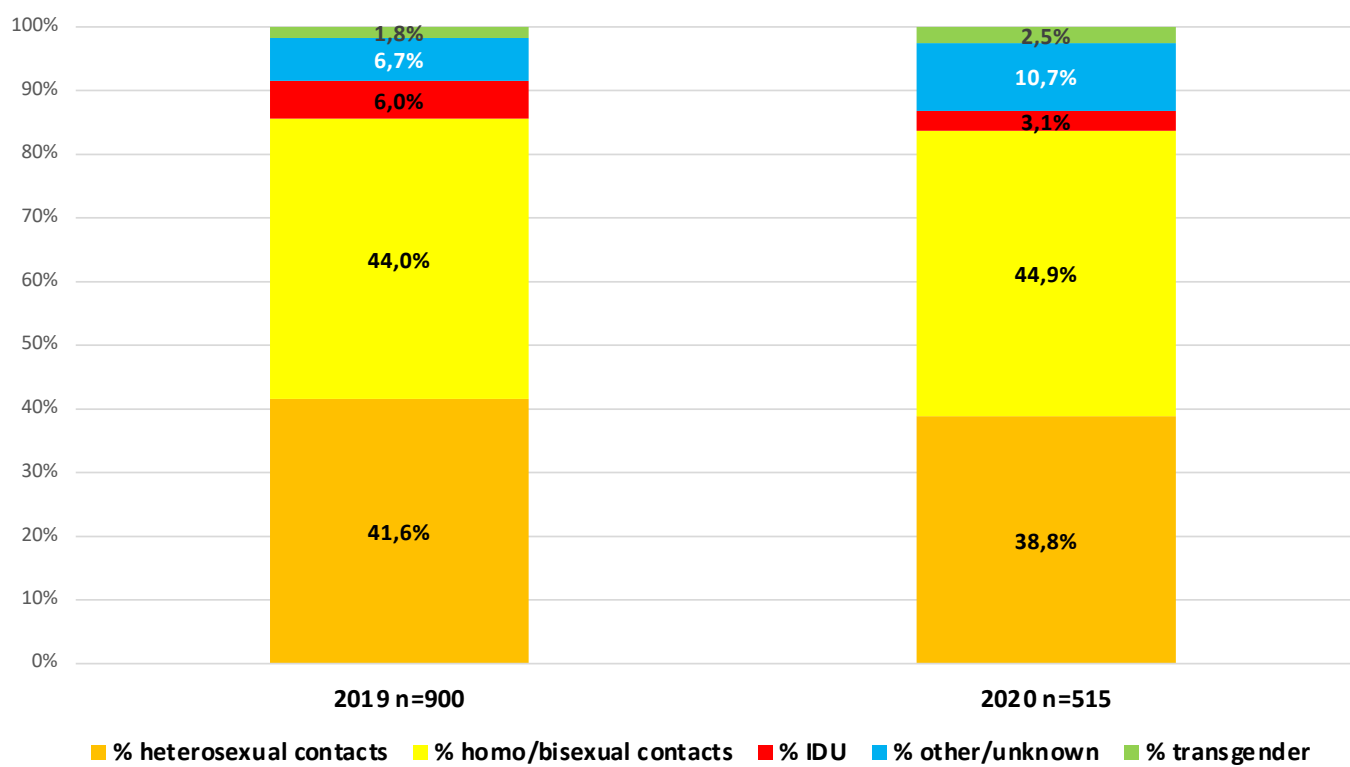


Number of patients enrolled by calendar year



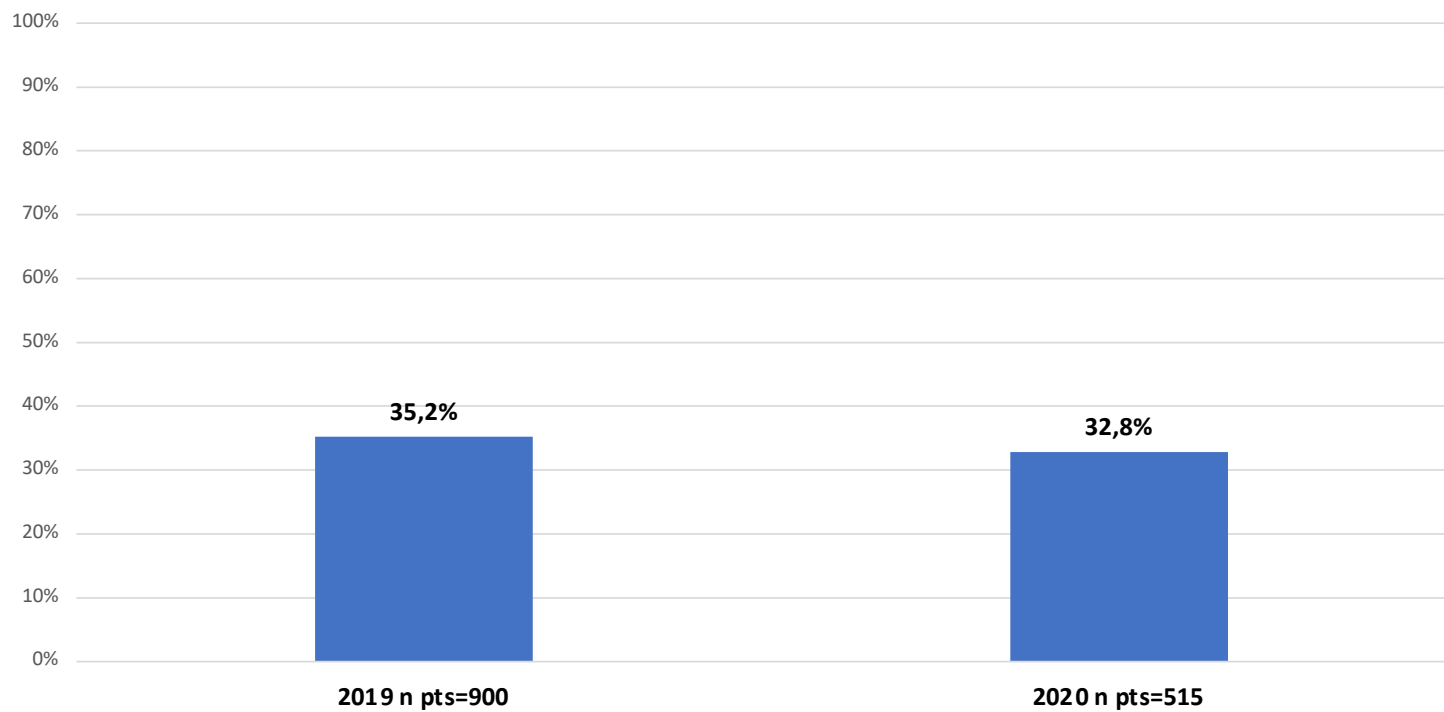


Mode of HIV transmission

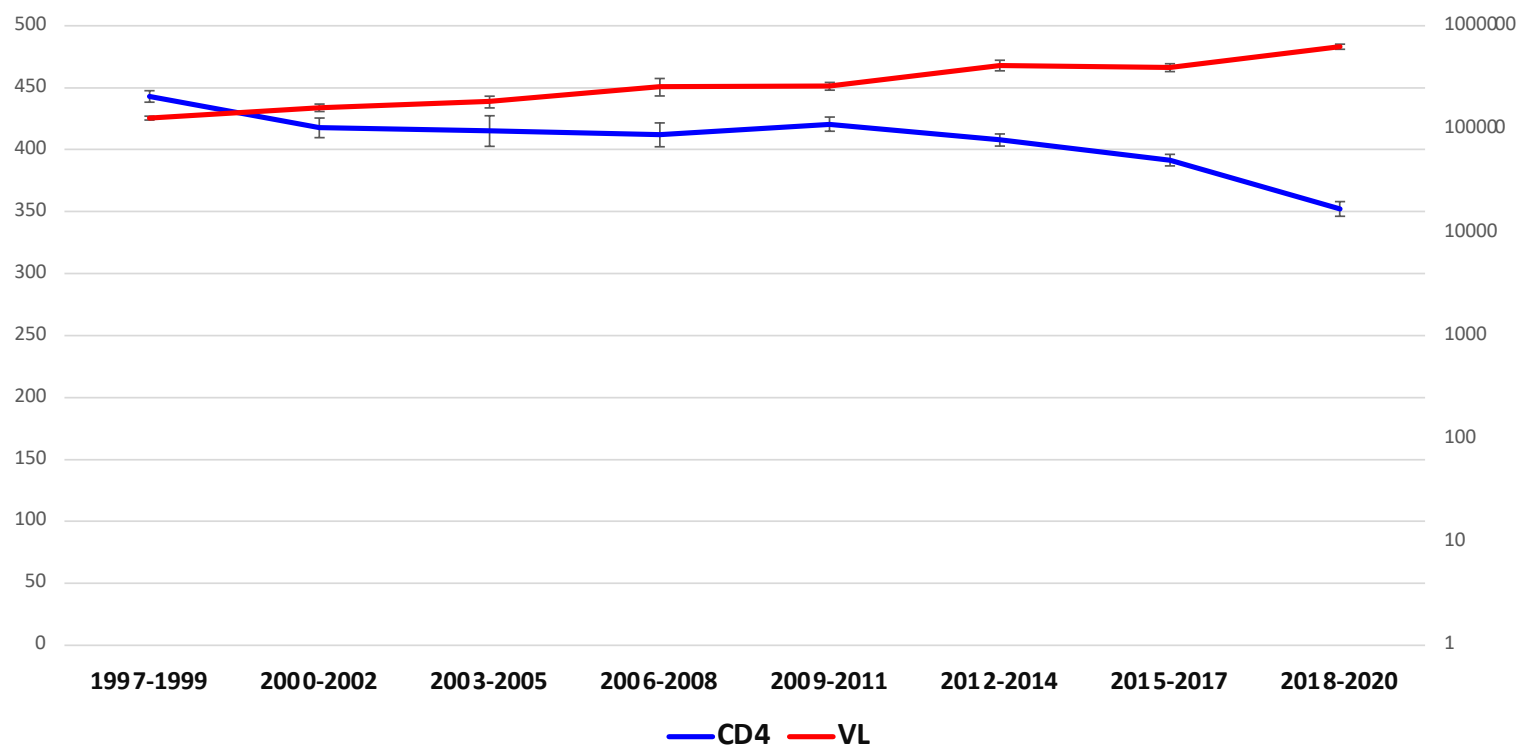




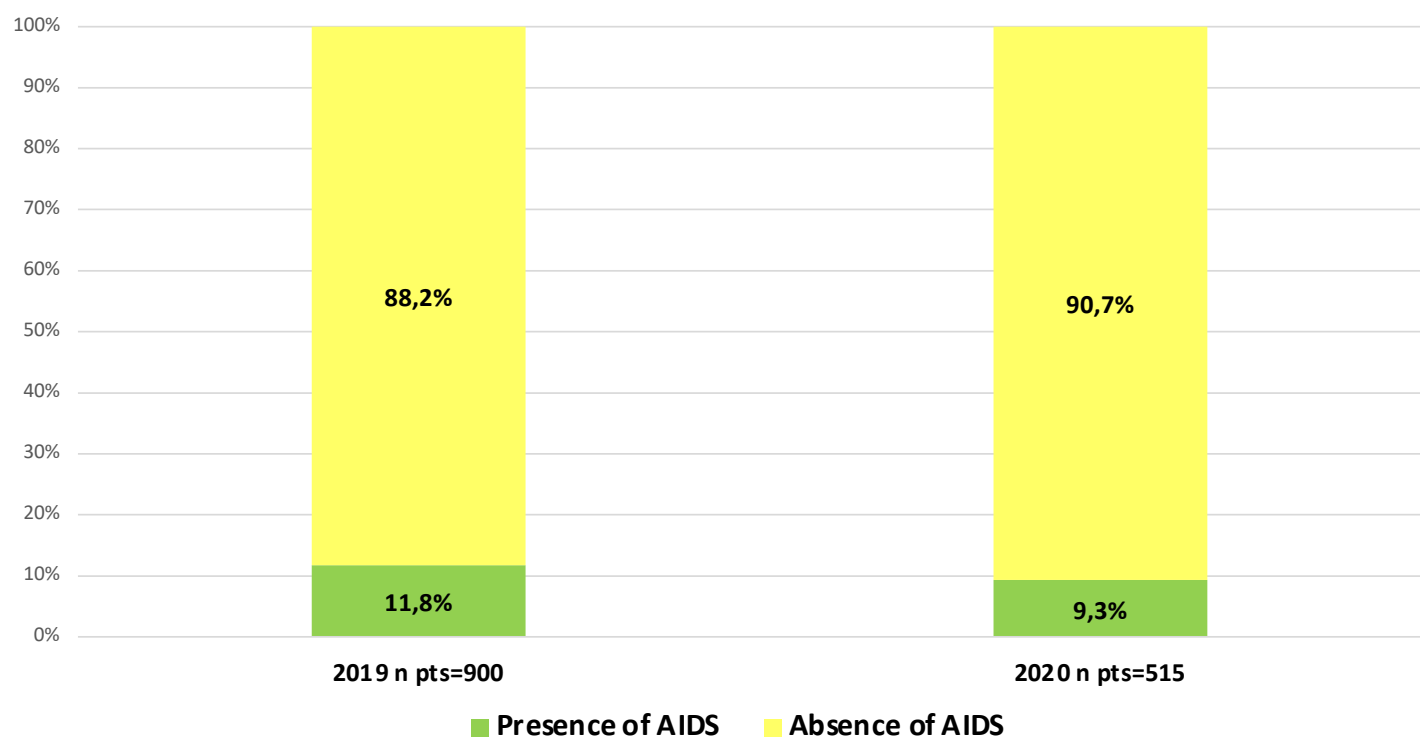
CD4<200 at enrollment



Mean CD4 count and HIV-RNA viral load at enrolment according to calendar period

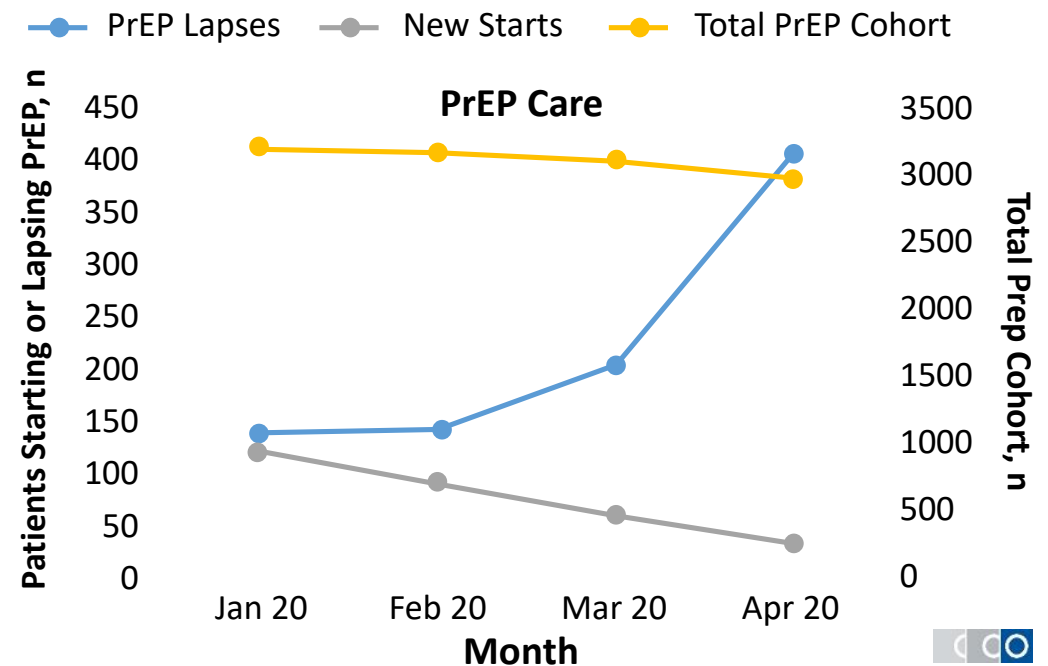
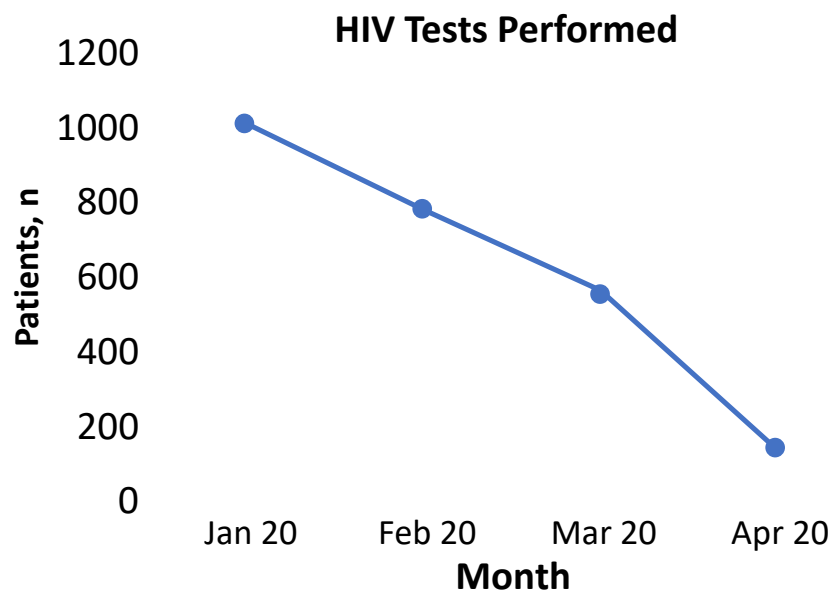


Prevalence of AIDS events or not at enrollment



Access to HIV Testing and PrEP Care in Boston

- Analysis of electronic health records data from January 2020 through April 2020 at Fenway Health, a community health center in Boston specializing in LGBTQIA+ healthcare
 - HIV tests decreased by 85.1%; total number of patients with an active PrEP prescription decreased by 18.3%***



Slide credit: clinicaloptions.com

Continuity of essential health services during the COVID-19 pandemic _ WHO Pulse survey August 2020

Fig. 2. Government policies in relation to service delivery platforms (n = 105)

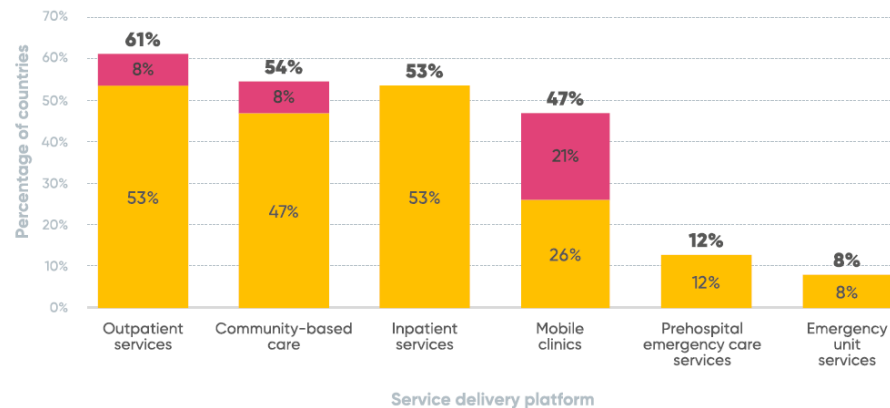
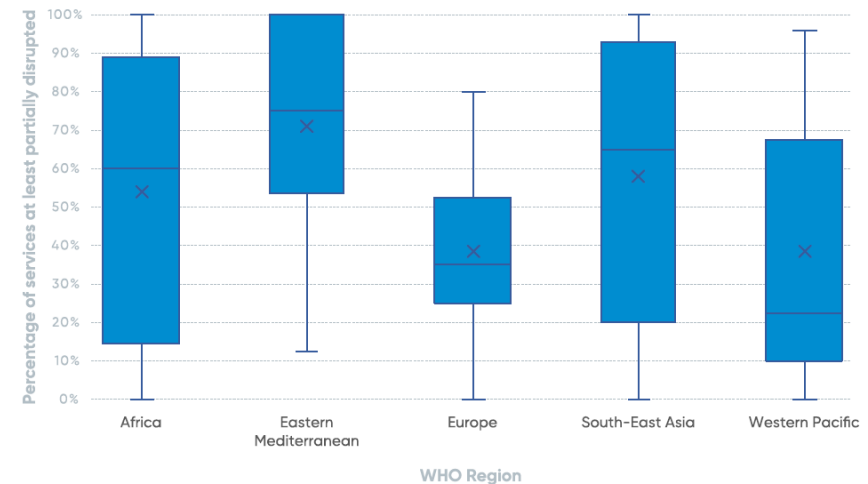
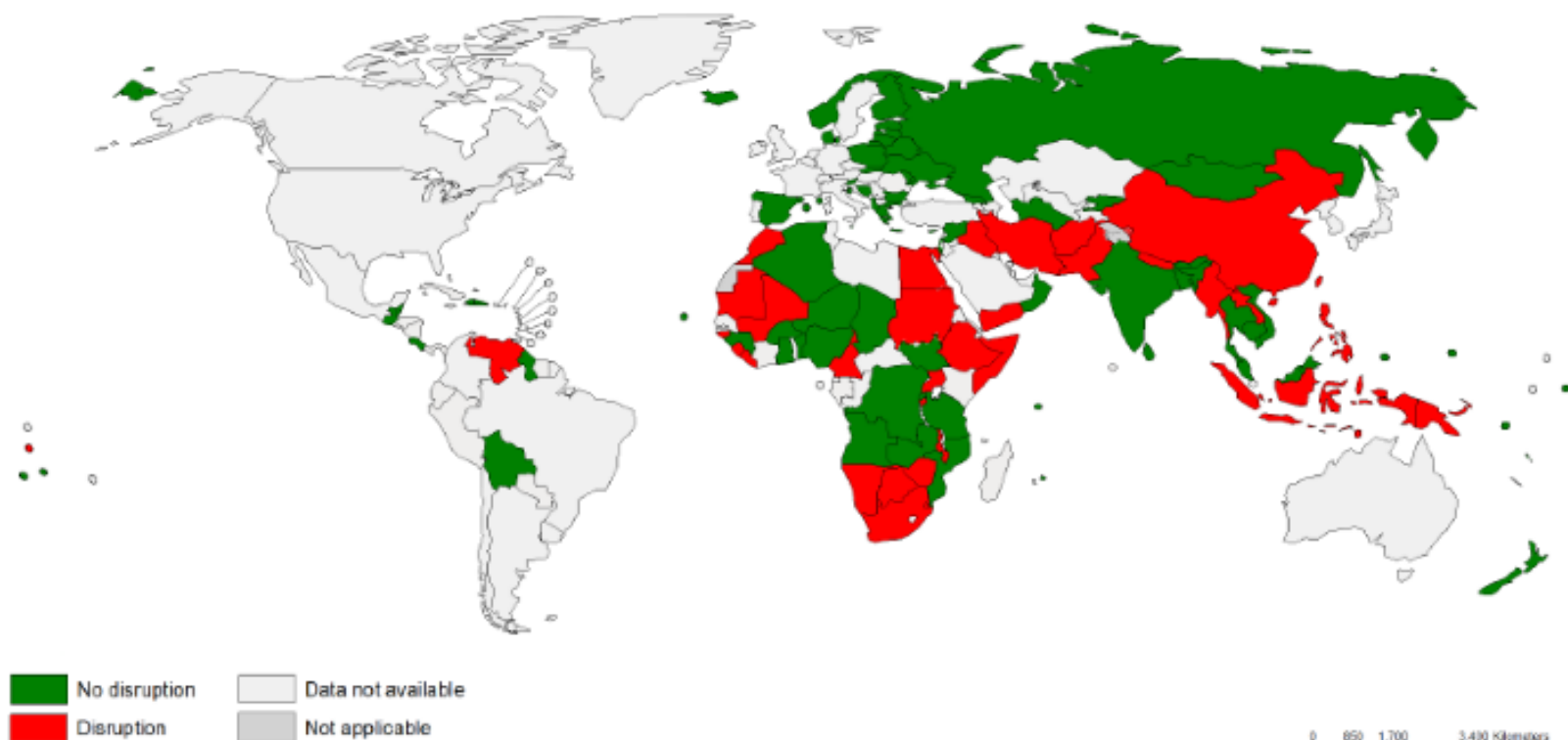


Fig. 4. Percentage of services at least partially disrupted (by WHO region) (n = 105)



Countries reporting on ARV disruptions due to COVID-19, 2020

Preliminary results compiled from a survey conducted by WHO between April and June 2020 (n=127)



Source: Global HIV, Hepatitis and STIs Programmes (HSS), WHO, 2020

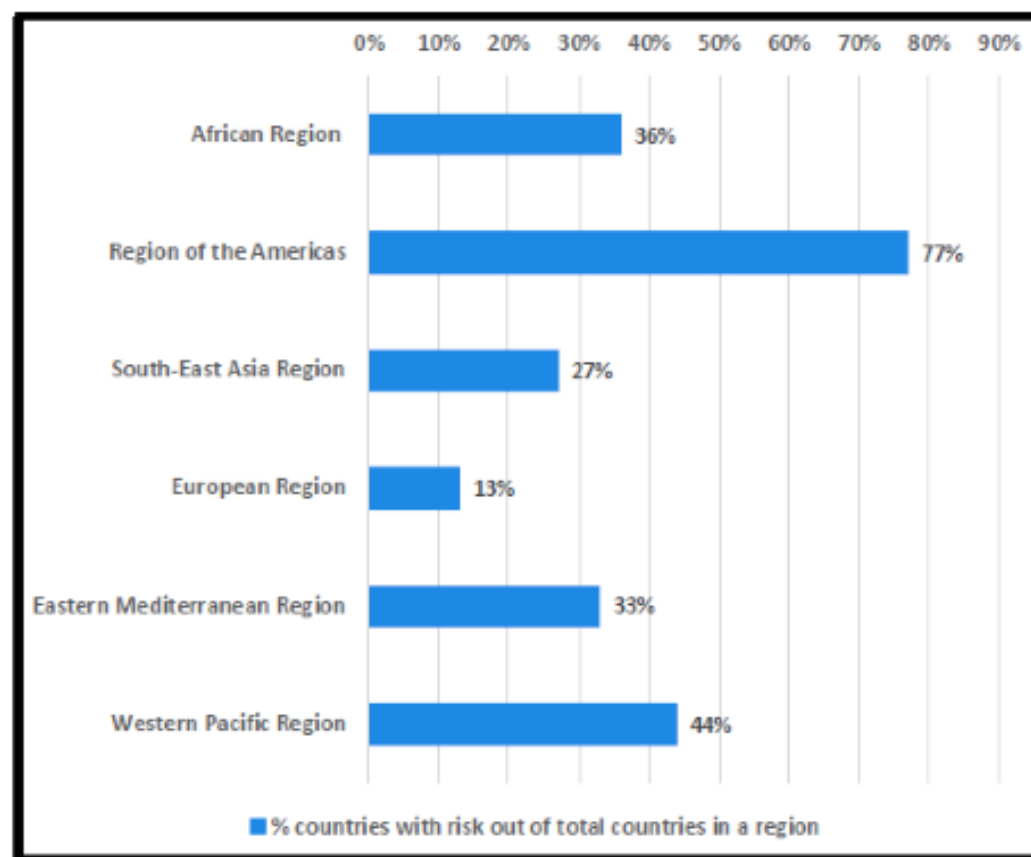
Disclaimer: The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.



**World Health
Organization**

Monitoring risk of ARV disruptions

- 73 countries reported risk of ARV disruptions – in varying degrees (30 countries with medium to high risk)*
- Cited causes:
 1. Drug supply issues and HIV drug manufacturer shut-downs
 2. Health systems capacity, e.g. health workers
 3. Access to services and financial constraints
 4. Restriction of movement because of lockdowns
 - “Failure of suppliers to deliver on time”
 - “Courier services shut-down due to COVID”
 - “Government has to pay upfront payments in order for some suppliers to process order.”



Source: WHO HM/HEP/STI COVID-19 Questionnaire

* Risk of disruption was assessed by WHO regional and country offices, with high disruption risk as greater than 50%, medium greater than 20%, low less than 20%



**World Health
Organization**

Impact of COVID-19 on HIV Treatment and Prevention



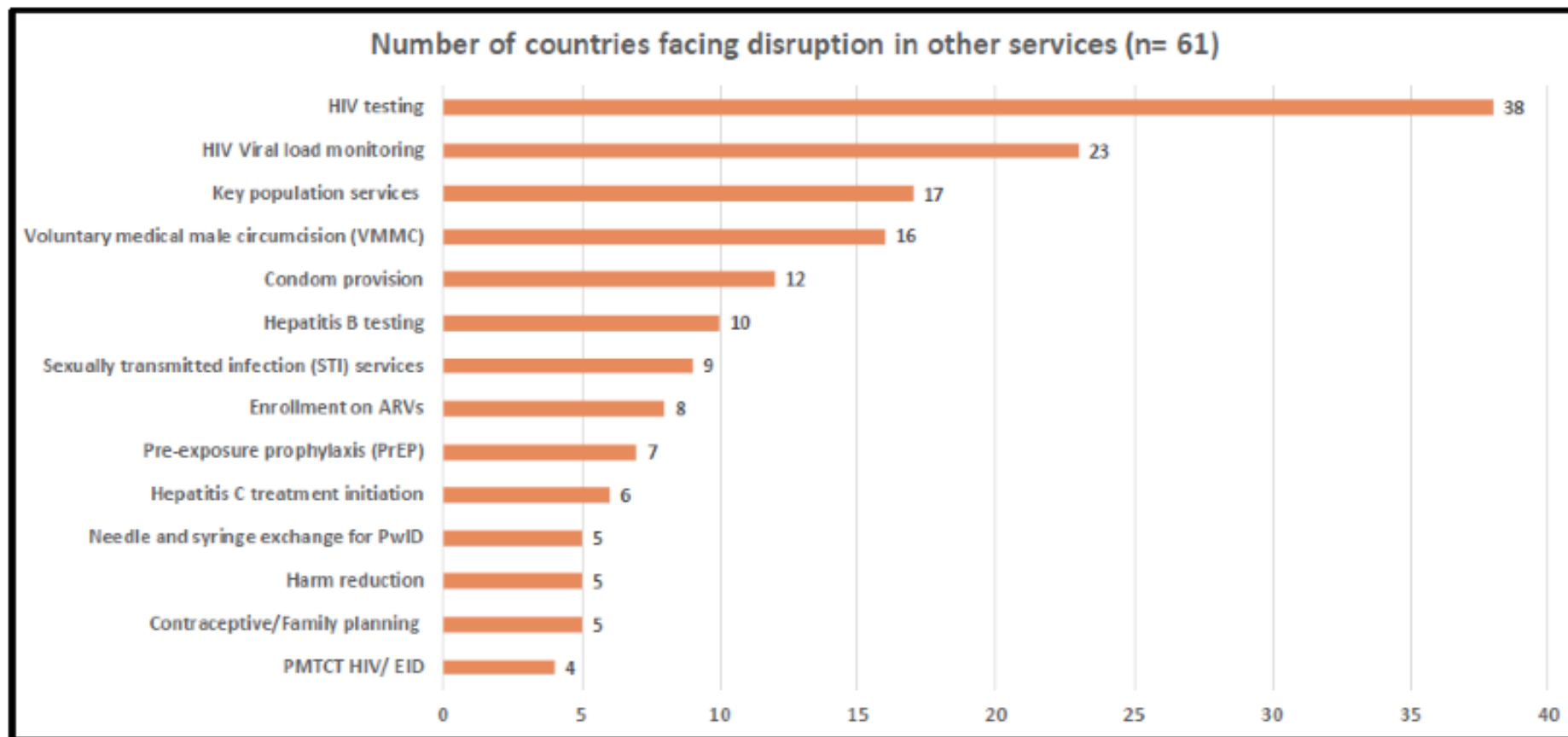
- WHO survey: significant disruptions in access to HIV treatment because of COVID-19
- Survey of >13,500 LGBTI+ people in 138 countries
 - Increased socioeconomic vulnerability
 - **26% of PWH reported difficulty with access to ART refills**
- Disruptions in PrEP care in the US
 - Especially among vulnerable subpopulations (young, non-white, Latinx, publicly insured)



<https://www.aids2020.org/aids-2020-virtual-opens-with-focus-on-impact-of-covid-19-on-global-hiv-response/>



Disruptions in other services due to COVID-19



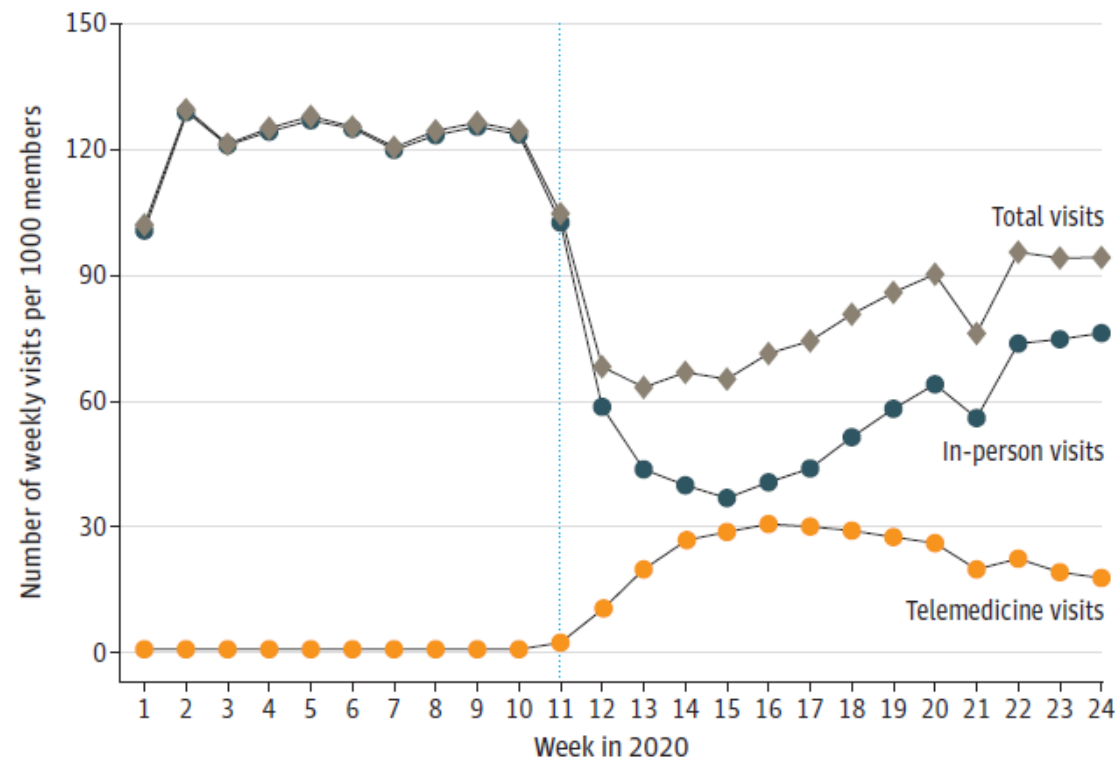
Prevention programs for VMMC and PWID are in selected countries, so disruption may be in most countries where there is a program

Source: WHO HM/HEP/STI COVID-19 Questionnaire



**World Health
Organization**

Trends in Outpatient Care Delivery and Telemedicine During the COVID-19 Pandemic in the US



Mehrotra A et al JAMA 2020

Out-patients visits on HIV positive patients in care at the ID unit of ASST Santi Paolo e Carlo, Milan

- ✓ Scheduled but missed visits March 1/May 11: 640/640 (100%)
- ✓ Scheduled and carried out visits May 11/July 16:
 - ✓ Out-patients *de visu* visits : 370
 - ✓ Advices by phone: 326
- ✓ ART drug refill: directly at the Hospital Farmacy, connected directly from outside
- ✓ In persons living outside Milan, a courier service was set up

Out-patients visits on HIV positive patients in care at the ID unit of ASST Fatebenefratelli-Sacco, Milan

- ✓ Scheduled but missed visits March 1/June 30: 1480/2064(72%)
- ✓ March-June 2019: 2845 visits
- ✓ ART drug refill: directly at the Hospital Farmacy, connected directly from outside
- ✓ In persons living outside Milan, a courier service was set up

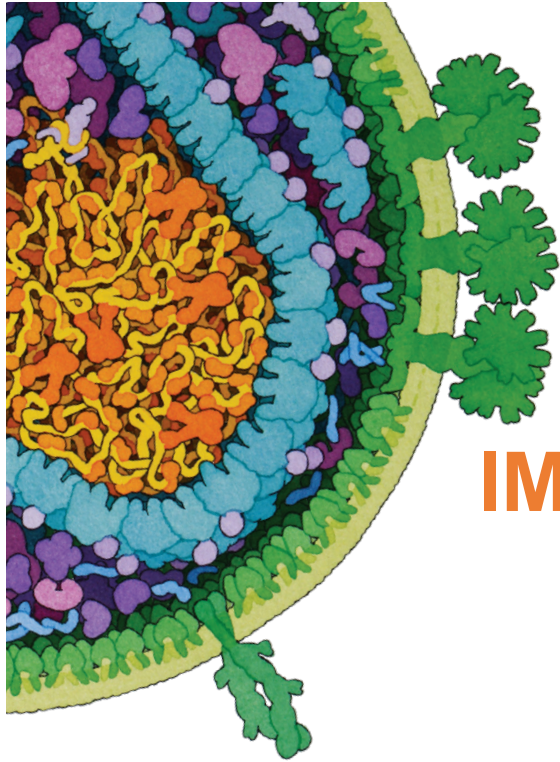


Out-patients visits on HIV positive patients in care at the ID units of San Raffaele(HSR), San Paolo (HSP), Niguarda (HN) and Sacco (HLS) Hospitals, Milan.

- ✓ In all the hospitals ART drug refill was assured: directly at the Hospital Pharmacy, connected directly from outside
- ✓ In persons living outside Milan, a courier service was set up

Out-patients visits on HIV positive patients in care at the ID units of San Raffaele(HSR) ,San Paolo (HSP), Niguarda (HN) and Sacco (HLS) Hospitals, Milan

Hospital	Visits/ phone contacts 2020	Visits 2019	Decrease %
HSR	6,261	2,920	53.4%
HSP	2,056	1,214	41%
Hn	2,202	1,709	22.4%
HLS	2,064	1,480	28.3%
TOTAL	12,583	7,323	41.8%



SCIENCE SPOTLIGHT™

IMPACT OF LOCKDOWN RESTRICTIONS DUE TO COVID-19 PANDEMIC ON HIV CARE IN ITALY

Andrea Antinori

National Institute for Infectious Disease Lazzaro Spallanzani IRCCS, Roma, Italy

Andrea Antinori, Alessandro Tavelli, Cristina Mussini, Andrea Gori, Franco Maggiolo, Antonella Castagna, Francesca Ceccherini-Silberstein, Sergio Lo Caputo, Massimo Puoti, Carmela Pinnetti, Valeria Calvino, Enrico Girardi, Carlo F. Perno, Antonella d'Arminio Monforte, Alessandro Cozzi-Lepri, on behalf of Icona Foundation Study Group

Disclosure: Consultancy to Gilead Sciences, Janssen-Cilag, Merck, Roche, Theratecnologies and ViiV Healthcare; research funding from Gilead Sciences, Janssen-Cilag and ViiV Healthcare

Introduction

- It has been observed that lockdown restrictions during COVID-19 pandemic may have had a negative impact on HIV epidemic goals with disruption in care¹⁻⁴.
- We aim to analyse the trends in non-viral suppression for PLWH during and after the lockdown period (March-May, 2020) for COVID-19 pandemic in Italy compared

Methods

- All participants in the ICONA cohort for whom there was ≥ 1 viral load (VL) in the window Nov 2019-Jan 2020 and with most recent $VL \leq 50$ copies/mL (exposed to lockdown), and over Nov 2018-Jan 2019 (not exposed).
- At population level and separately by year, we calculated proportion with $VL \leq 50$ copies/mL at each month over March-September and performed an intermittent time series (**Autoregressive Integrated Moving Average-ARIMA**) model centred in March.
- In addition, we defined an individual outcome using the first VL over May-September (>50 vs. ≤ 50 copies/mL), comparing proportion with $VL > 50$ copies/mL between exposed and not exposed by means of **Logistic Regression Models**.
- An **ITT (M=F)** and an **OT** model were fitted. We also performed an OT analysis in which potential collider bias was minimised using inverse probability of weighting (**OT-IPW**).
- Analyses were repeated after restricting to clinical sites with electronic linkage to laboratory data and to the subset of PLWH

¹Spinelli MA, et al. AIDS. 2020 Dec 1;34(15):2328-2331; ²Hogan AB, et al. Lancet Glob Heal 2020; 8: e1132–41; ³Jewell BL, et al. Lancet HIV 2020; 7: e629–40.

⁴Simões D, et al. Eurosurveillance 2020; 25. DOI:10.2807/1560-7917.

Results I - Main characteristics according to calendar year

All patients (n=7,380)

Characteristics	Calendar year			
	2019	2020	p-value*	Total
	N= 3,784	N= 3,596		N= 7,380
Gender, n(%)			0.649	
Female	750 (19.8%)	728 (20.2%)		1,478 (20.0%)
Mode of HIV Transmission, n(%)			0.801	
IDU	355 (9.4%)	319 (8.9%)		674 (9.1%)
Homosexual contacts	1,820 (48.1%)	1,714 (47.7%)		3,534 (47.9%)
Heterosexual contacts	1,420 (37.5%)	1,382 (38.4%)		2,802 (38.0%)
Nationality, n(%)			0.568	
Not Italian	189 (5.0%)	181 (5.0%)		370 (5.0%)
Age, years			0.005	
Median (IQR)	47 (38, 55)	48 (39, 56)		48 (39, 56)
CD4 count, cells/mm ³			0.003	
Median (IQR)	688 (503, 897)	710 (517, 933)		699 (509, 916)
≤200 cells/mm ³	130 (3.4%)	110 (3.1%)	0.362	240 (3.3%)
Time from HIV diagnosis to pre-lockdown VL, months			0.002	
Median (IQR)	73 (32, 141)	79 (38, 143)		76 (34, 142)
Gap between pre- and post-lockdown VL, months			<.001	
Median (IQR)	6 (5, 7)	6 (6, 8)		6 (5, 7)

*Chi-square or Mann-Whitney test as appropriate

Results II – Population ARIMA estimates

In 2020, the mean proportion of VL<50 copies/mL was:

- 98% at March 2020 (ref.)
- 98% before March 2020
- 93% at April 2020
- 95% after April 2020.

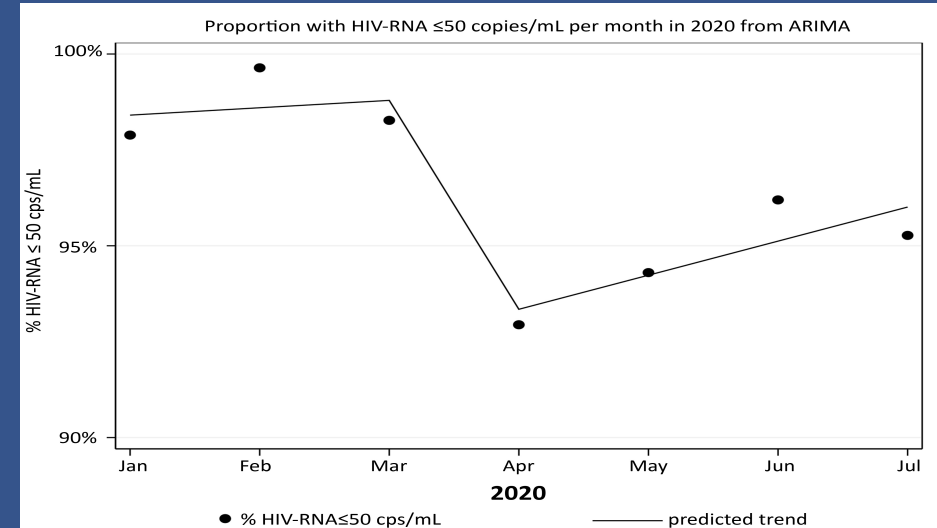
Contrast April vs. March: -6%, [95% CI:-10%;-3%], $P=0.03$)

In 2019, the same proportions were:

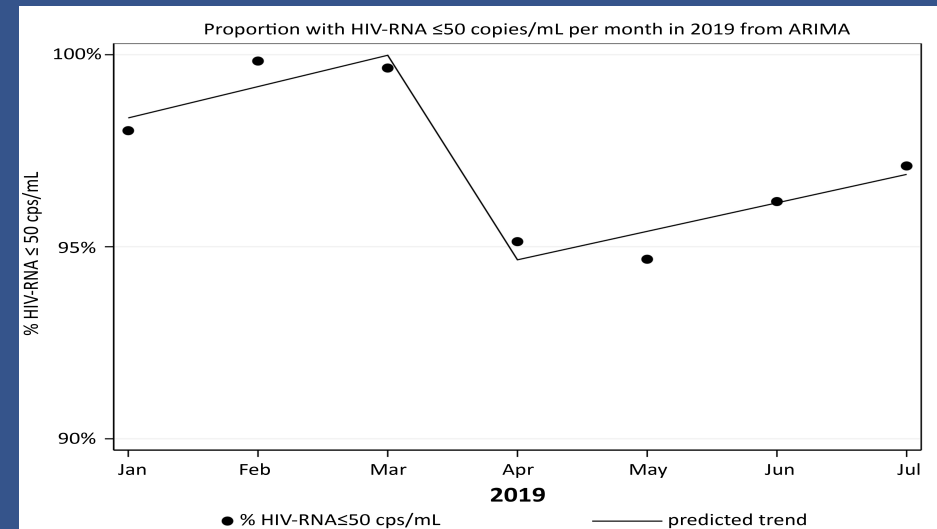
- 98% at march 2019 (ref.)
- 100% before March 2019
- 95% at April 2019
- 97% after April 2019

Contrast April vs. March: -6%, [95% CI:-8%;-4%], $p=0.01$)

2020



2019



Results III - OR from fitting a logistic regression model

	Unadjusted and adjusted OR of a VL>50 copies/mL or missed blood count post-lockdown				
	Failure n(%)	Unadjusted HR (95% CI)	p-value	Adjusted* HR (95% CI)	p-value
	ITT analysis ^{&} (n=2,900)				
Calendar year					
2019	264 (19.1%)	1		1	
2020	380 (25.0%)	1.41 (1.18, 1.68)	<.001	1.44 (1.20, 1.72)	<.001
	OT analysis [§] (n=7,380)				
Calendar year					
2019	106 (3.6%)	1		1	
2020	97 (4.2%)	1.18 (0.89, 1.56)	0.255	1.19 (0.90, 1.59)	0.219
	OT IPW analysis [£] (n=7,380)				
Calendar year					
2019	106 (3.6%)			1	
2020	97 (4.2%)			1.18 (0.89, 1.56)	0.253
^{&} a VL>50 or missing VL are counted as failures. Only sites with full updated VL (n=2,900) were included in this analysis.					
[§] a VL>50 is counted as failures, missing VL excluded. Overall dataset (n=7,380) was used for this analysis					
[£] a VL>50 is counted as failures, censoring controlled with inverse probability of weighting (IPW). Overall dataset (n=7,380) was used for this analysis					
[*] adjusted for nationality, gender, geographical region of clinical site, mode of HIV transmission, pre-lockdown CD4 count, age and frequency of monitoring of VL					

Conclusions

- We found only a slight increase in the proportion of PLWH with a VL>50 copies/mL, following stable suppression, in the period post-lockdown (2020) due to COVID-19 as compared to the previous year (2019).
- The increase was larger when counting missing blood draws as failures (ITT) (absolute risk difference of ~6%) than in the OT analysis comparing VL suppression in those who had a blood count fully updated (<1% in risk difference)
- Although IPW were used to minimise the potential impact of collider bias, reasons for a missing VL should be furtherly explored, including delay in data report.
- Reasons for detecting an increased risk of rate of uncontrolled viremia should be investigated, also considering modifications of assistance modality consequent to shelter-in-place ordinances.

How will Covid-19 change healthcare in Europe?

Percentage of pharma execs who agree or strongly agree



93%

Faster adoption of
telehealth



84%

Growth of online
pharmacy channels



84%

Changes in patient triaging
and workforce flow



74%

New go-to-market
models in pharma



86%

Pharma supply chain
reconfiguration

KEY CLINICAL POINTS

HIV INFECTION — SCREENING, DIAGNOSIS, AND TREATMENT

- Despite extensive knowledge about human immunodeficiency virus (HIV), the number of cases of incident HIV infection decreased by only 7% between 2014 and 2018.
- One in seven persons with HIV infection in the United States is unaware of the infection, and transmission from these persons accounts for at least a third of new infections annually.
- Clinicians should test for HIV routinely in their practices, with repeat HIV testing in persons who inject drugs, have multiple sexual partners, exchange sex for money or drugs, or have incident sexually transmitted infections.
- Persons with a new diagnosis of HIV infection should be promptly referred to a clinical setting where a full HIV assessment can be performed and antiretroviral therapy can be initiated rapidly.
- Long-term retention in care and maintenance of successful antiretroviral therapy allow persons with HIV infection to have a near-normal life span and virtually eliminate transmission of HIV to others.

Michael Saag, N Engl J Med 2021