



**Infezioni trasmissibili con la trasfusione:
*fattori di rischio, comunicazione e counselling
con il donatore positivo***

Epidemiologia e fattori di rischio di HIV

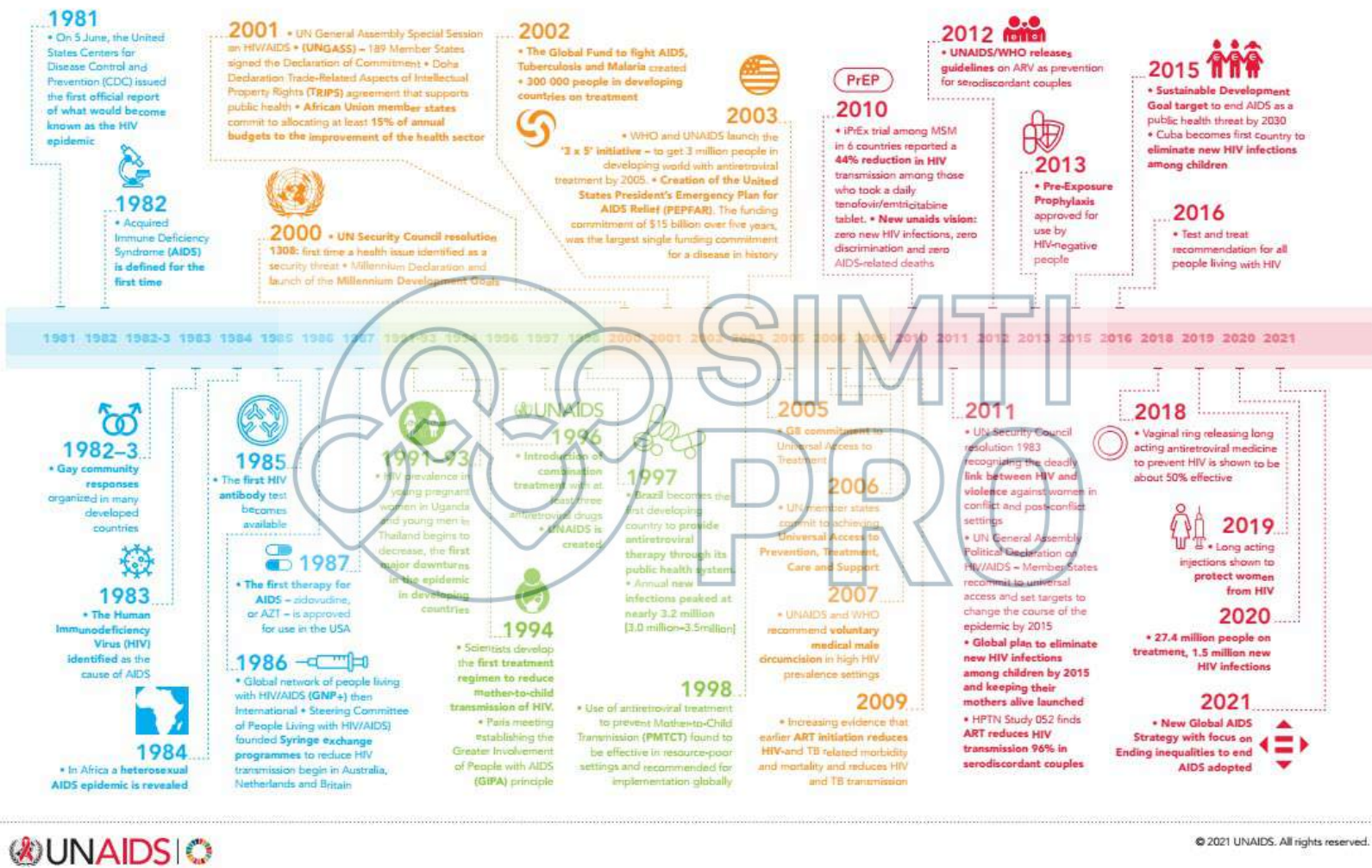
Dott.ssa Simona Mercinelli
UOC Malattie Infettive
AOU Federico II

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nell'esercizio della Sua funzione e per l'evento in oggetto, **NON** È in alcun modo portatrice di interessi commerciali propri o di terzi; e che gli eventuali rapporti avuti negli ultimi due anni con soggetti portatori di interessi commerciali non sono tali da permettere a tali soggetti di influenzare le mie funzioni al fine di trarne vantaggio.



40 YEARS OF THE AIDS RESPONSE

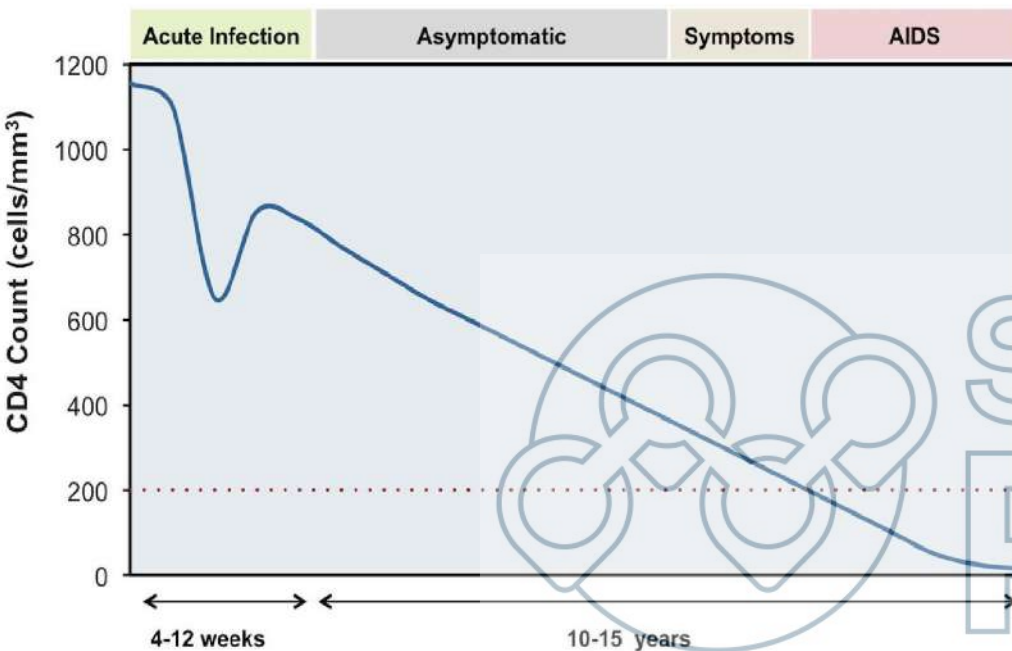


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HIV Treatment over the Decades

- **1980's:** AIDS described, pneumocystis kills 90% of patients, clinicians develop skills in diagnosing, treating and preventing complications
- **1990's:** First effective treatments, patients respond, death rates drop
- **2000's:** New toxicities arise, resistance identified, adherence prioritized, limitations become apparent
- **2007:** Second round of effective antiretroviral agents (e.g., integrase inhibitors, CCR5 inhibitors)
- **2013:** First serious discussions of cure
- **2015-2016:** Preexposure prophylaxis and “treatment as prevention”

From HIV infection to AIDS



HIV and AIDS: What's the difference?

The diagram shows four test tubes representing the progression of HIV over 10 years without medicine. The number of HIV virus particles (red spheres) increases over time, while the number of CD4 cells (blue spheres) decreases. At 10 years, the test tube is almost entirely filled with HIV virus particles, and very few CD4 cells remain.

HIV

- HIV is the virus that causes HIV infection.
- HIV damages the immune system by killing CD4 cells.

CD4 Cells

- CD4 cells are part of the immune system.
- HIV attacks and kills CD4 cells.
- Loss of CD4 cells makes it hard for the body to fight off infections.

AIDS

- AIDS is the last stage of HIV infection.
- As HIV infection advances to AIDS, the amount of HIV in the body increases and the number of CD4 cells decreases.
- HIV medicines can stop HIV infection from advancing to AIDS.
- Without HIV medicines, HIV advances to AIDS in about 10 years.

For more information, visit HIVinfo.NIA.gov



SIMTI
PRO

HIV Epidemiology

HIV-1 and HIV-2

HIV subtypes:

- HIV type 1 (**HIV-1**)
- HIV type 2 (**HIV-2**).

Although both viruses share similar transmission routes and can cause AIDS, there are important differences between them regarding epidemiology, diagnosis, and management.



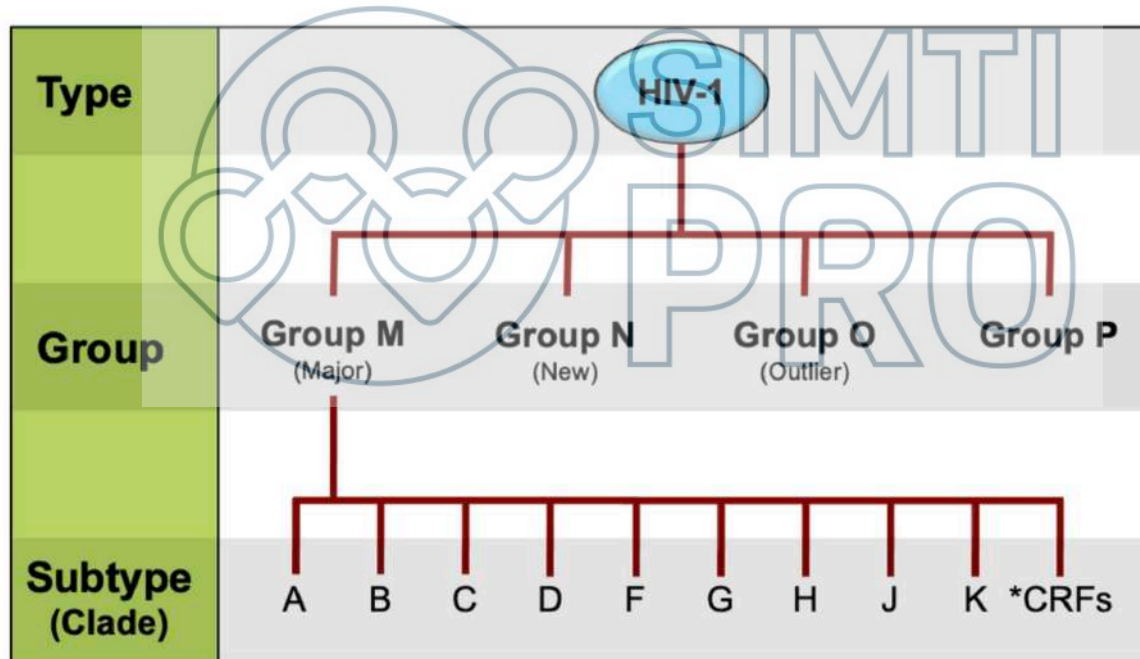
Kapoor AK, Padival S. HIV-2 Infection. [Updated 2022 Sep 20]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK572083/>.

HIV-1 and HIV-2

HIV-1

Strains of HIV-1 can be classified into four groups:

- the “major” **group M**,
- the “outlier” **group O**,
- two additional **groups, N and P**.



*CRFs = Circulating Recombinant Forms

Centers for Disease Control and Prevention. Estimated HIV Incidence and Prevalence in the United States, 2017–2021. HIV Surveillance Supplemental Report. 2023;28(3). Published May 2023.

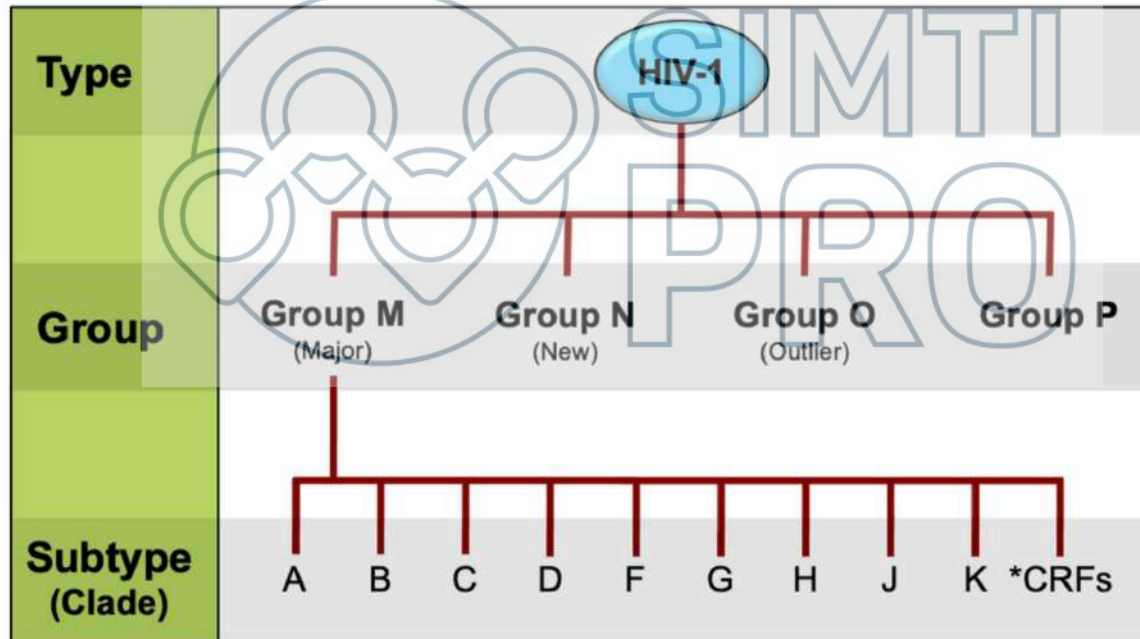
HIV-1 and HIV-2

HIV-1

Group M, is responsible for most of the global HIV pandemic, has at least nine distinct subtypes (clades) of genetically related HIV.

Among the nine HIV-1 group M subtypes, three are responsible for most HIV infections globally:

- subtype A (common in Western Africa, Central Africa, and Russia),
- subtype B (common in Europe, the Americas, Australia, and Japan),
- subtype C (common in Southern Africa, Eastern Africa, India, and Nepal).



*CRFs = Circulating Recombinant Forms

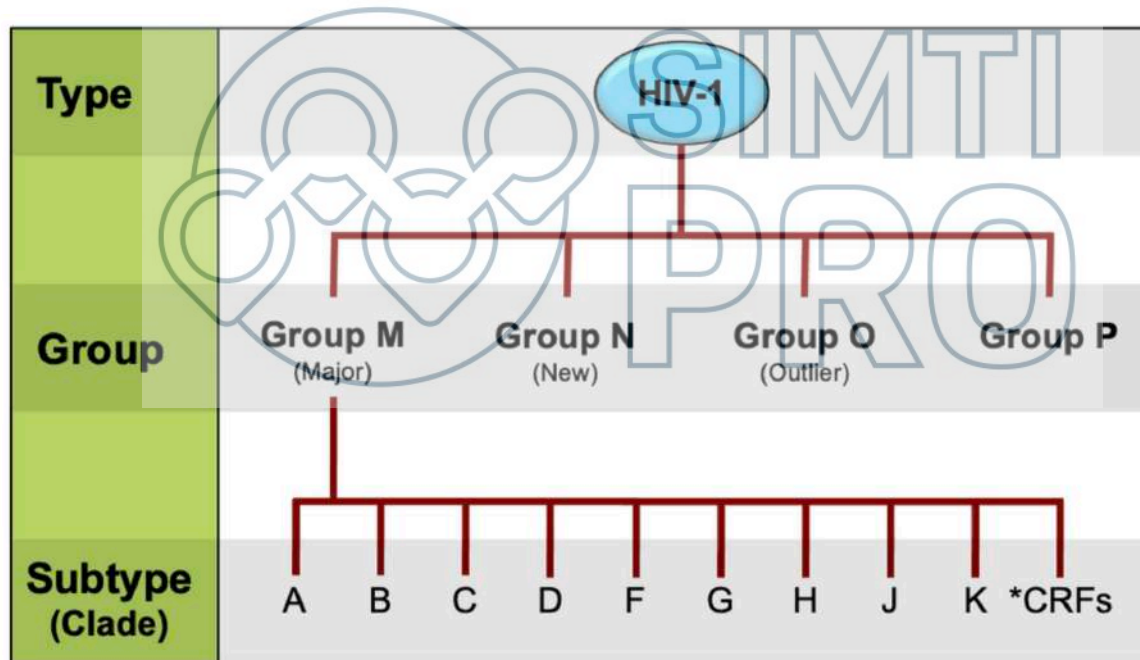
Centers for Disease Control and Prevention. Estimated HIV Incidence and Prevalence in the United States, 2017–2021. HIV Surveillance Supplemental Report. 2023;28(3). Published May 2023.

HIV-1 and HIV-2

HIV-1

Groups N, O, and P are uncommon and have been found in Africa.

Viral subtypes can mix genetic material and create a hybrid virus, and if the recombinant virus is capable of transmission, it is designated as a **circulating recombinant form (CRF)**.



*CRFs = Circulating Recombinant Forms

Centers for Disease Control and Prevention. Estimated HIV Incidence and Prevalence in the United States, 2017–2021. HIV Surveillance Supplemental Report. 2023;28(3). Published May 2023.

HIV-1 and HIV-2

HIV-2

- Of the estimated 39 million individuals with HIV worldwide in 2022, approximately **1-2 million have HIV-2**, including those with both HIV-1 and HIV-2.
- Most persons with HIV-2 reside in **West Africa**, or in countries, particularly France, Spain, and Portugal, after migrating from West Africa.
- In addition, HIV-2 has been reported in several former Portuguese colonies, including Angola, Mozambique, and the Indian states of Goa and Maharashtra.
- Since 1996, HIV-2 prevalence has declined in several West African countries.

Kapoor AK, Padival S. HIV-2 Infection. [Updated 2022 Sep 20]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK572083/>.

HIV-1 and HIV-2

HIV-2

- Compared with individuals with HIV-1, persons with HIV-2 typically have attenuated clinical progression and lower rates of sexual and perinatal HIV transmission.
- Relative to HIV-1, HIV-2 is less virulent and is characterized by lower plasma HIV RNA levels, a slower decline in CD4 cell counts, and a longer time to progress to AIDS.

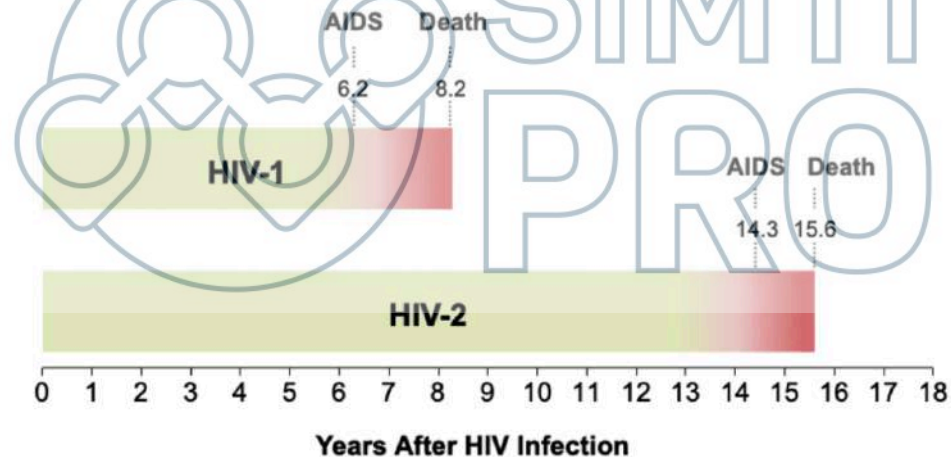
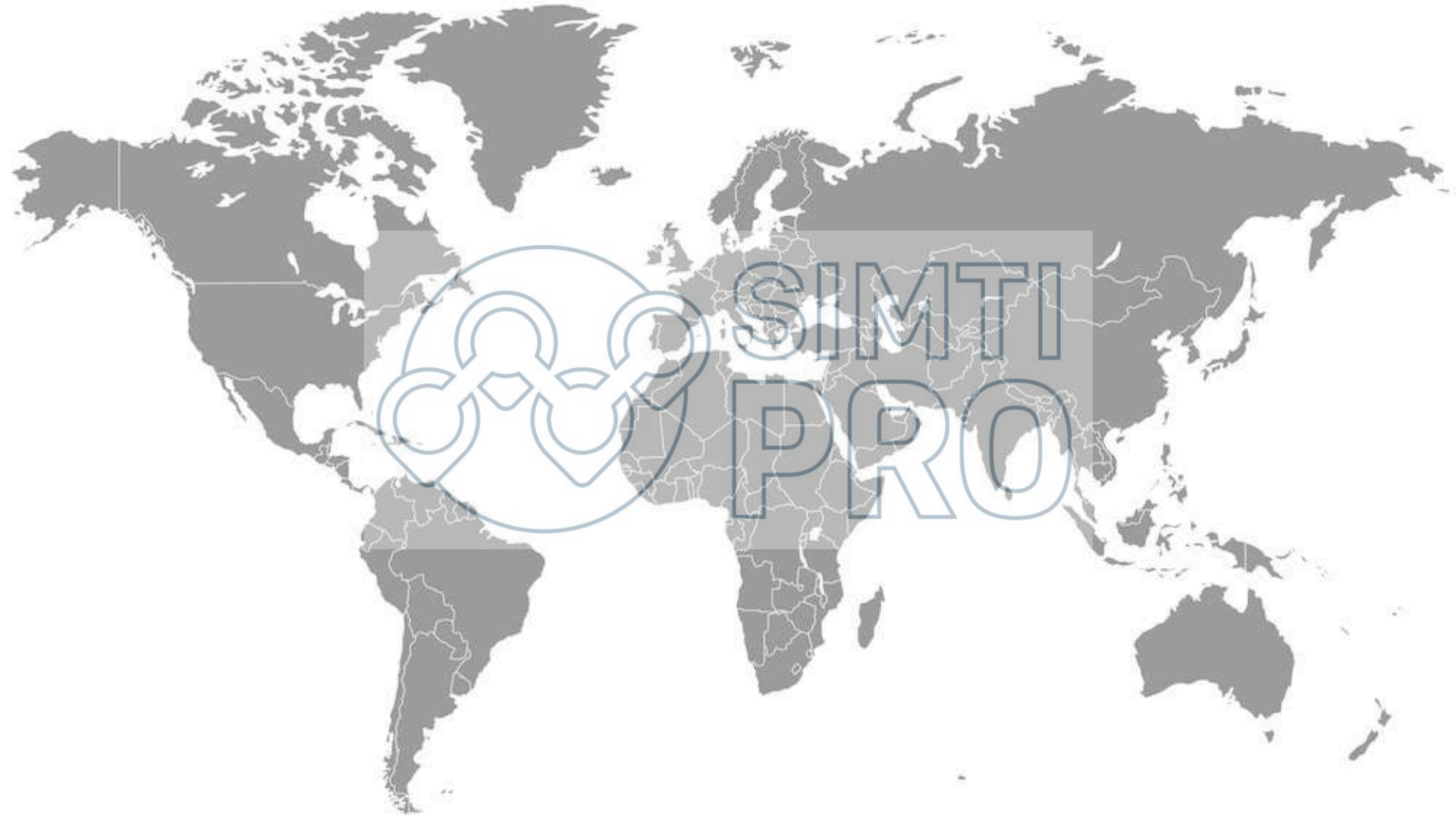


Figure 2. Median Time to AIDS and Death in Persons with HIV-1 or HIV-2 in West Africa

This graphic shows follow-up of 225 persons with HIV-1 and 87 with HIV-2. Median time to development of AIDS was slower in persons with HIV-2 but median survival was brief after AIDS in both groups.

Esbjörnsson J, Månsson F, Kvist A, et al. Long-term follow-up of HIV-2-related AIDS and mortality in Guinea-Bissau: a prospective open cohort study. *Lancet HIV*. 2018;S2352-3018(18)30254-6.

Global HIV Epidemiology



Global HIV Epidemiology



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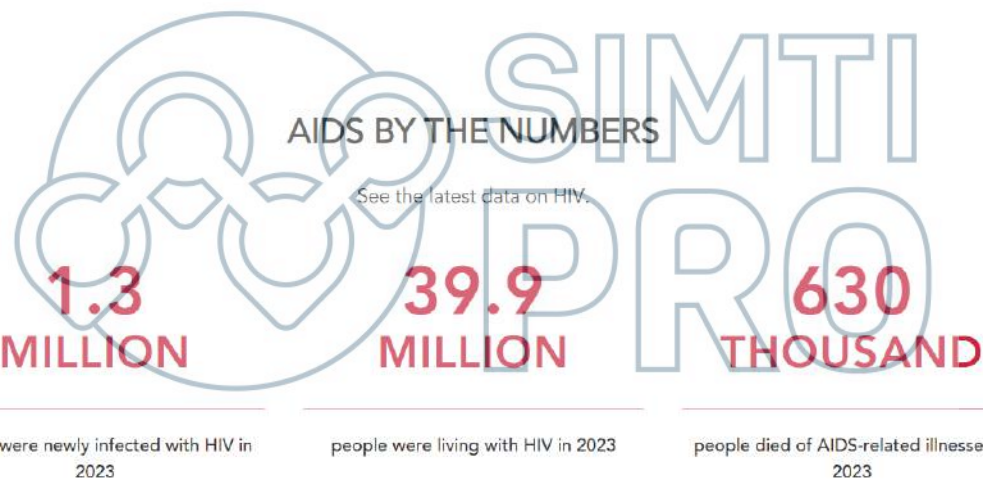
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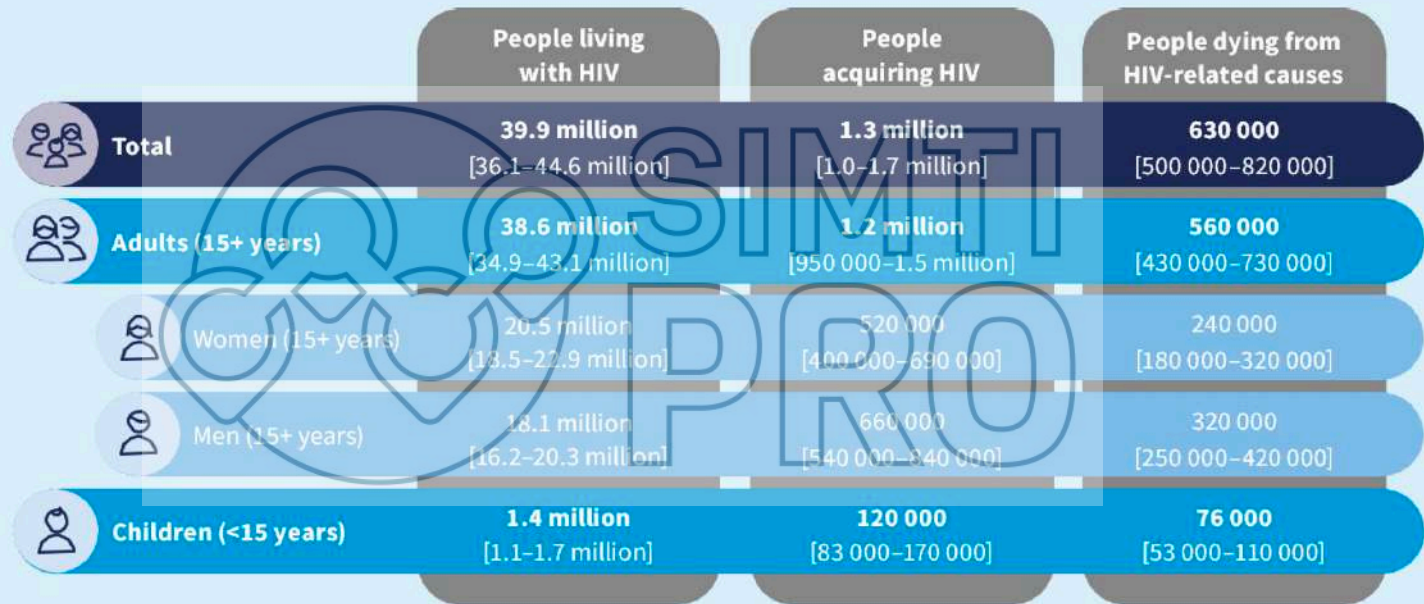
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Global HIV Epidemiology

Summary of the global HIV epidemic, 2023



Global HIV Epidemiology

Global HIV epidemic – people living with HIV

2023
Globally

39.9 million

People living with HIV

+25%

compared with 2010



Source: UNAIDS/WHO estimates, 2024.

6

Updated: July 2024

Global HIV Epidemiology

Global HIV epidemic – incidence and mortality since 2010

2023
Globally

39.9 million

People living with HIV

-39%

New HIV infections
annually compared with 2010



-51%

HIV-related deaths
annually compared with 2010



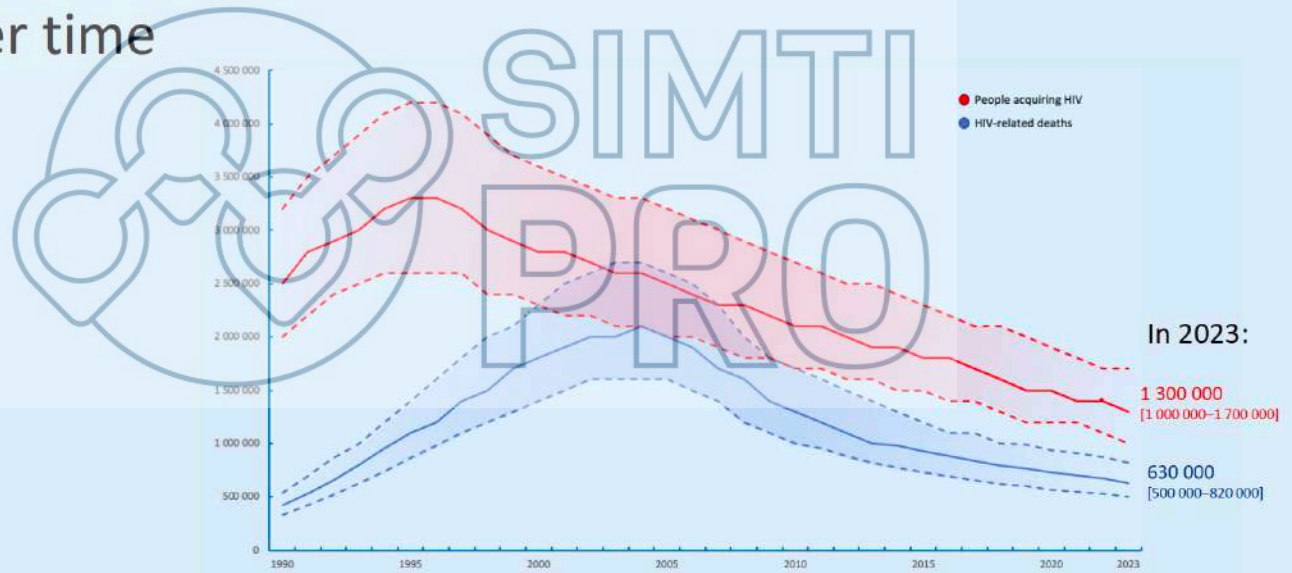
Source: UNAIDS/WHO estimates, 2024.

7

Updated: July 2024

Global HIV Epidemiology

Decline in number of people acquiring HIV and HIV-related deaths, globally over time



Source: UNAIDS/WHO estimates, 2024.

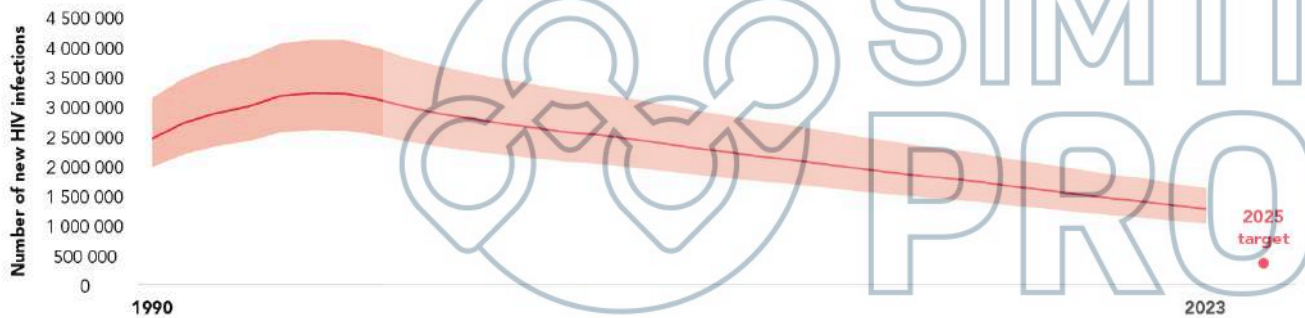
8

Updated: July 2024

Global HIV Epidemiology

- Fewer people acquired HIV in 2023 than at any point since the late 1980s.

Figure 0.1 Number of new HIV infections, global, 1990–2023, and 2025 target



Source: UNAIDS epidemiological estimates, 2024 (<https://aidsinfo.unaids.org/>).

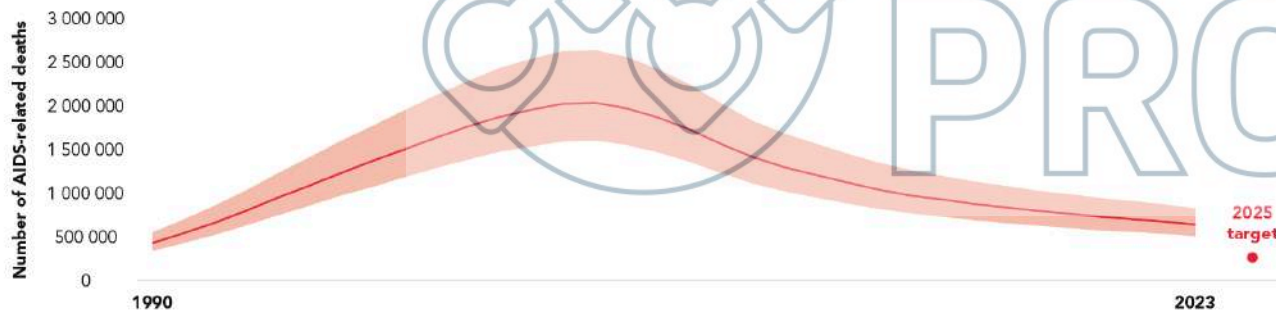


The urgency of now: AIDS at a crossroads. Geneva: Joint United Nations Programme on HIV/AIDS; 2024. Licence: CC BY-NC-SA 3.0 IGO.

Global HIV Epidemiology

- Almost 31 million people were receiving life saving antiretroviral therapy in 2023, a public health success that has reduced the numbers of AIDS-related deaths to their lowest level since the peak in 2004

Figure 0.2 Number of AIDS-related deaths, global, 1990–2023, and 2025 target



Source: UNAIDS epidemiological estimates, 2024 (<https://aidsinfo.unaids.org/>).



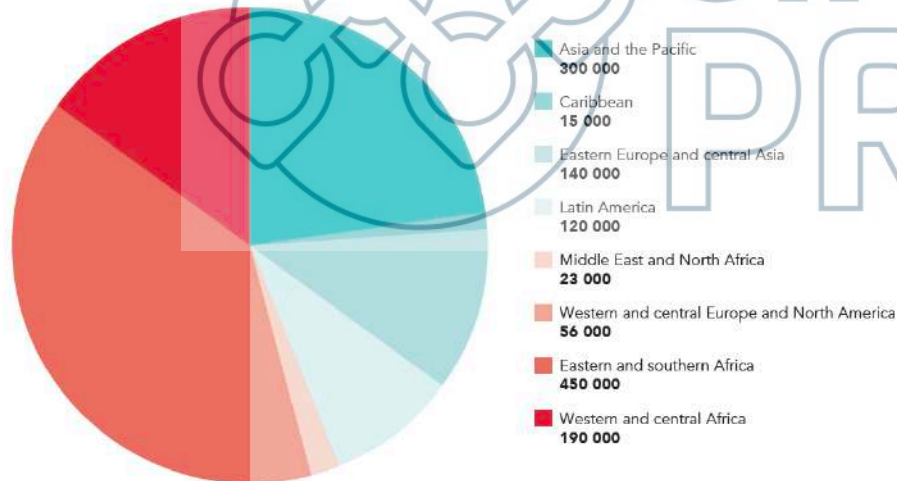
The urgency of now: AIDS at a crossroads. Geneva: Joint United Nations Programme on HIV/AIDS; 2024. Licence: CC BY-NC-SA 3.0 IGO.

Global HIV Epidemiology

- The progress is highly uneven, however. The global HIV response is moving at **two speeds**: relatively swiftly in sub-Saharan Africa, but hesitantly across the rest of the world. The numbers of people acquiring **HIV are rising in at least 28 countries**, some of which already have substantial epidemics.

More than half of new HIV infections in 2023 were outside sub-Saharan Africa

Figure 1.1 Distribution of new HIV infections, by region, 2023



Source: UNAIDS epidemiological estimates, 2024 (<https://aidsinfo.unaids.org/>).



The urgency of now: AIDS at a crossroads. Geneva: Joint United Nations Programme on HIV/AIDS; 2024. Licence: CC BY-NC-SA 3.0 IGO.

Global HIV Epidemiology

GLOBAL

Number of people acquiring HIV:

1 300 000
[1 000 000–1 700 000]

Number of people dying from HIV-related causes:

630 000
[500 000–820 000]

REGION OF THE AMERICAS

Number of people acquiring HIV:

160 000
[130 000–210 000]

Number of people dying from HIV-related causes:

44 000
[32 000–60 000]

EUROPEAN REGION

Number of people acquiring HIV:

160 000
[140 000–190 000]

Number of people dying from HIV-related causes:

49 000
[38 000–60 000]

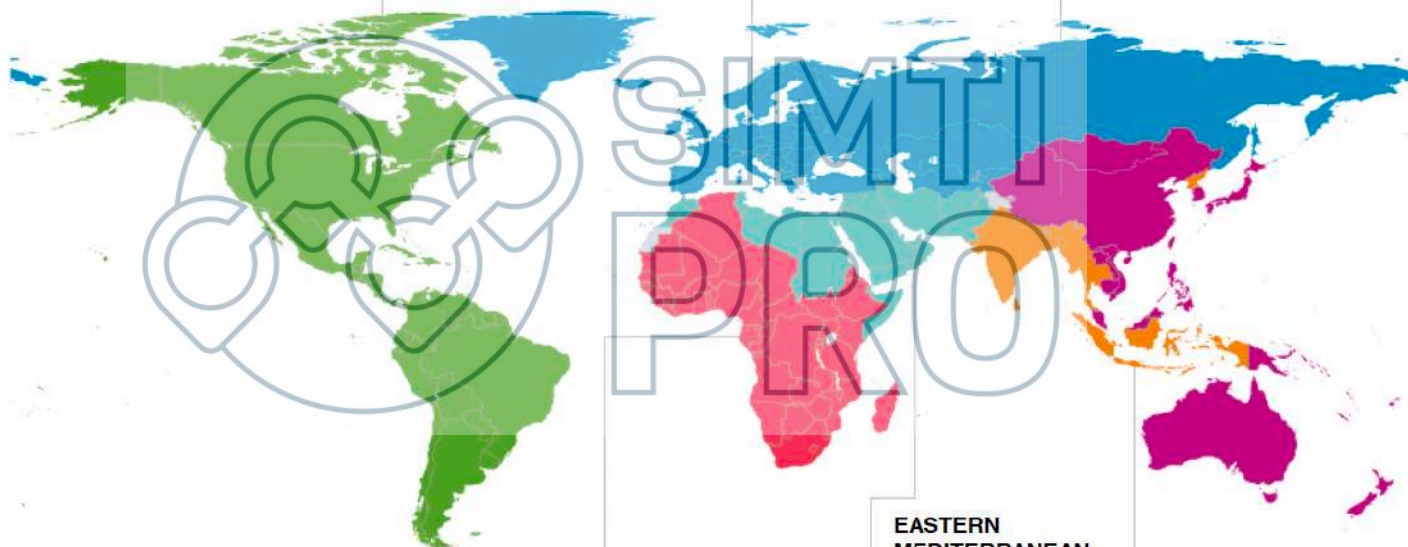
WESTERN PACIFIC REGION

Number of people acquiring HIV:

140 000
[130 000–150 000]

Number of people dying from HIV-related causes:

53 000
[42 000–65 000]



WHO REGIONS

- African Region
- Region of the Americas
- South-East Asia Region
- European Region
- Eastern Mediterranean Region
- Western Pacific Region
- Not applicable

AFRICAN REGION

Number of people acquiring HIV:

640 000
[490 000–860 000]

Number of people dying from HIV-related causes:

390 000
[310 000–490 000]

EASTERN MEDITERRANEAN REGION

Number of people acquiring HIV:

67 000
[53 000–96 000]

Number of people dying from HIV-related causes:

20 000
[15 000–29 000]

SOUTH-EAST ASIA REGION

Number of people acquiring HIV:

120 000
[91 000–160 000]

Number of people dying from HIV-related causes:

83 000
[61 000–110 000]

HIV Epidemiology in Europe



HIV Epidemiology in Europe

Table A: Characteristics of new HIV and AIDS diagnoses reported in the WHO European Region, the EU/EEA, and West, Centre and East of the WHO European Region, 2022

	WHO European Region	West	Centre	East	EU/EEA
Reporting countries/number of countries ^a	49/53	21/23	15/15	13/15	30/30
Number of HIV diagnoses	110 486	22 397	8 945	79 144	22 995
Rate of HIV diagnoses per 100 000 population	12.4	5.1	4.5	30.7	5.1
Percentage age 15–24 years	5.7%	8.9%	11.7%	4.2%	8.9%
Percentage age 50+ years	16.7%	21.8%	15.1%	15.5%	19.9%
Male-to-female ratio	1.8	2.4	2.9	1.6	2.4
Percentage of migrants ^b	26.7%	52.3%	27.0%	2.2%	48.3%
Transmission mode					
Sex between men	11.3%	35.2%	18.7%	3.7%	33.3%
Heterosexual transmission (men)	31.7%	15.1%	14.9%	38.3%	14.6%
Heterosexual transmission (women)	29.5%	21.0%	10.5%	34.1%	19.0%
Injecting drug use	16.1%	3.8%	2.1%	21.1%	4.3%
Mother-to-child transmission	0.6%	1.1%	0.8%	0.4%	1.2%
Unknown	10.8%	23.6%	52.8%	2.4%	27.3%
AIDS and late HIV diagnosis					
Percentage HIV diagnoses CD4 <350 cells/mm ³	50.6	46.2	44.5	55.1	47.9%
Number of AIDS diagnoses ^c	7 220	1 873	825	4 522	2 349
Rate of AIDS diagnoses per 100 000 population	1.1	0.5	0.4	4.4	0.6

a No data reported by Andorra, Monaco, Turkmenistan and Uzbekistan.

b Migrants defined as originating from outside of the country in which they were diagnosed

c No data reported by Andorra, Bosnia and Herzegovina, Germany, Monaco, North Macedonia, Russian Federation, Sweden, Turkmenistan or Uzbekistan.



European Centre for Disease Prevention and Control/WHO Regional Office for Europe. HIV/AIDS surveillance in Europe 2023 – 2022 data. Stockholm: ECDC; 2023.

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Male-to-female ratio	1.8	2.4	2.9	1.6	2.4
Percentage of migrants ^b	36.7%	53.2%	27.0%	2.2%	48.3%
Transmission					
Sex between					
Heterosexual	33.3%				33.3%
Heterosexual	14.6%				14.6%
Injecting drug use	4.3%				4.3%
Mother-to-child transmission	1.2%				1.2%
Unknown	27.3%				27.3%
AIDS and late HIV diagnosis					
Percentage HIV diagnoses CD4 <350 cells/mm ³	47.9%				47.9%
Number of AIDS diagnoses ^c	2349				2349
Rate of AIDS diagnoses per 100 000 population	0.6				0.6

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Percentage of migrants ^b	26.7%	52.3%	27.0%	2.2%	48.3%
Transmission					
Sex between					
Rate of HIV diagnoses per 100 000 population				12.4	33.3%
Heterosexual transmission (men)	29.7%	21.0%	10.5%	34.1%	14.6%
Heterosexual transmission (women)	29.5%	21.0%	10.5%	34.1%	19.0%
Injecting drug use	16.1%	3.8%	2.1%	21.1%	4.3%
Mother-to-child transmission	0.6%	1.1%	0.8%	0.4%	1.2%
Unknown	10.8%	23.6%	52.8%	2.4%	27.3%
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Percentage of migrants ^b	26.7%	52.3%	27.0%	2.2%	48.3%
Transmission mode					
Sex between men	33.3%				33.3%
Heterosexual transmission (men to women)	14.6%				14.6%
Injecting drug use	19.0%				19.0%
Unknown	23.1%				23.1%

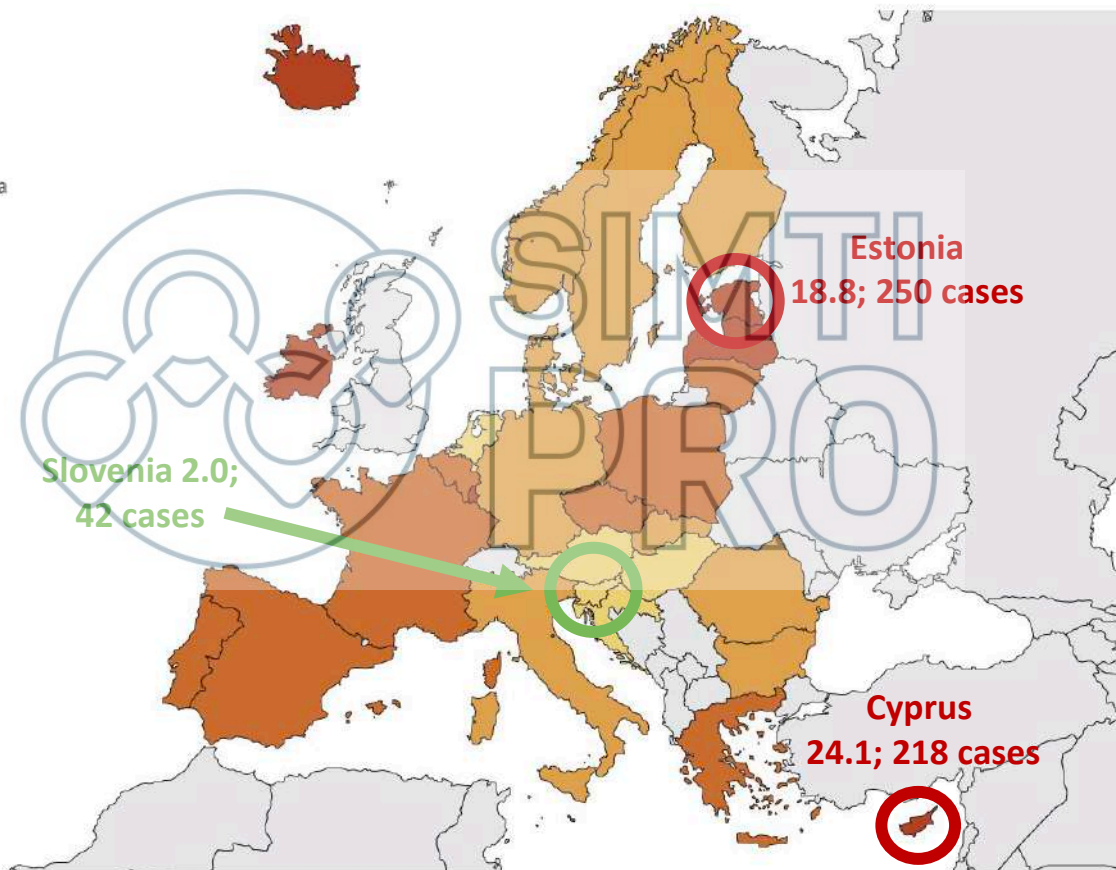
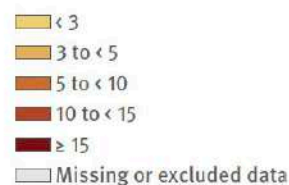
This corresponds to a crude rate of **12.4** HIV diagnoses per 100 000 population in the Region overall, a slight increase on the rate for 2021 (**11.9** per 100 000 population).

However, this represents a substantial **decrease on the rate for 2019** (**15.6** per 100 000 population), which was the period before the COVID-19 pandemic.



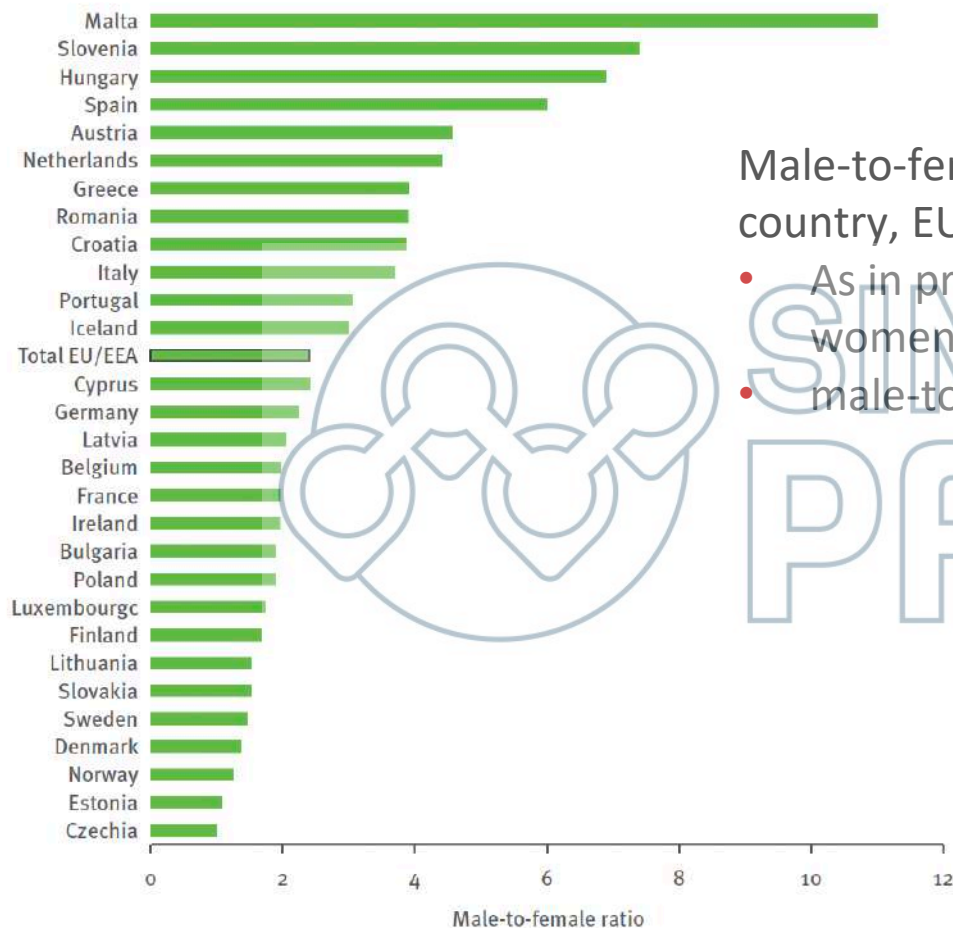
HIV Epidemiology in Europe

Map 1b: HIV diagnoses per 100 000 population, 2022, EU/EEA



European Centre for Disease Prevention and Control/WHO Regional Office for Europe. HIV/AIDS surveillance in Europe 2023 – 2022 data. Stockholm: ECDC; 2023.

HIV Epidemiology in Europe



Male-to-female ratio in HIV diagnoses, by country, EU/EEA, 2022:

- As in previous years, more **men** than women were diagnosed with HIV in 2022;
- male-to-female ratio of 2.4:1



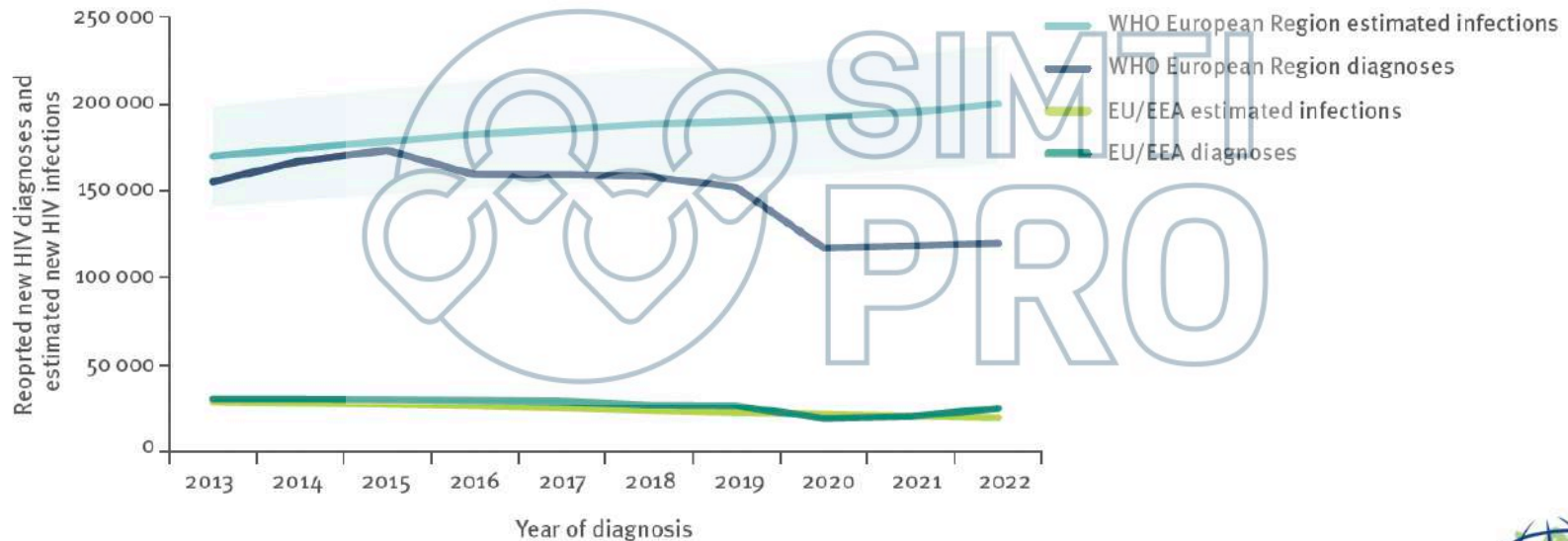
Notes: Data from Liechtenstein reported only one case in 2022 and is excluded from the figure.

European Centre for Disease Prevention and Control/WHO Regional Office for Europe. HIV/AIDS surveillance in Europe 2023 – 2022 data. Stockholm: ECDC; 2023.

HIV Epidemiology in Europe

When comparing the number of HIV diagnoses to the estimated number of new HIV infections over the past decade, it is evident that :

- an **increasingly larger number of individuals acquire HIV infection than are diagnosed,**
- the population of people living with undiagnosed HIV in the Region is growing.



Shaded areas represent uncertainty intervals around the best estimate.

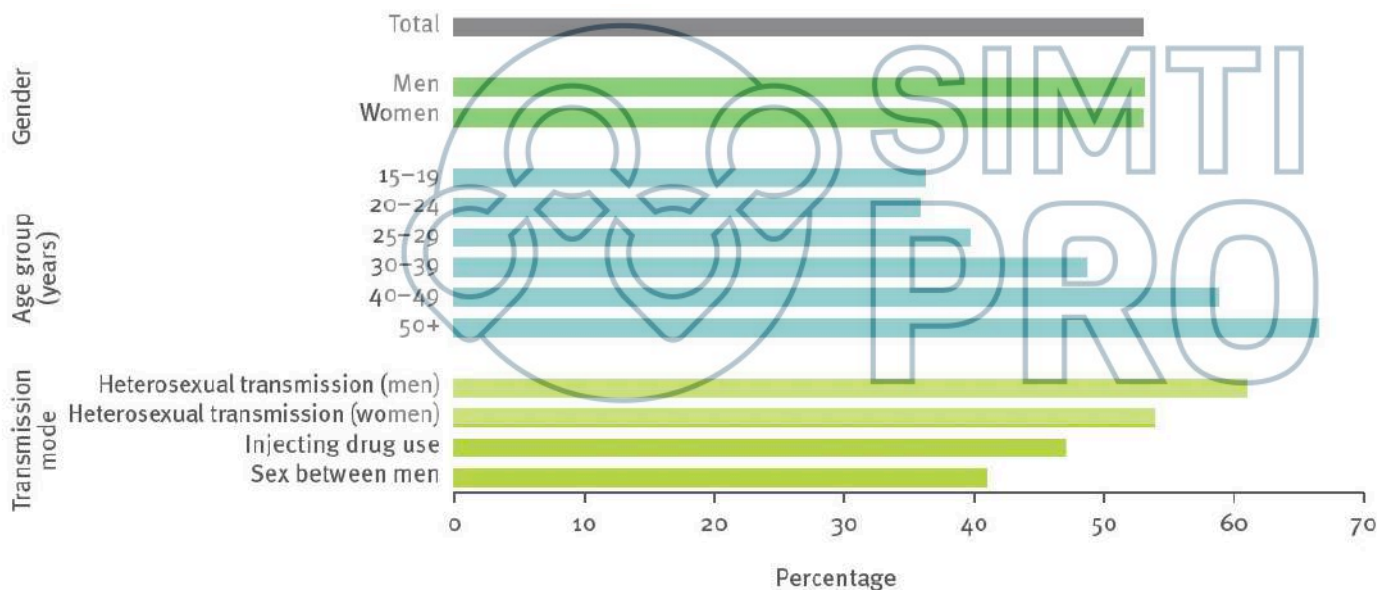
Note: Data from Andorra, Monaco, Turkmenistan, and Uzbekistan were excluded due to inconsistent reporting during the period.



European Centre for Disease Prevention and Control/WHO Regional Office for Europe. HIV/AIDS surveillance in Europe 2023 – 2022 data. Stockholm: ECDC; 2023.

HIV Epidemiology in Europe

Late HIV diagnosis remains a challenge for most countries in the Region, with about half (**50.6%**) of those diagnosed in 2022 diagnosed late (CD4 cell count less than 350/mm³).

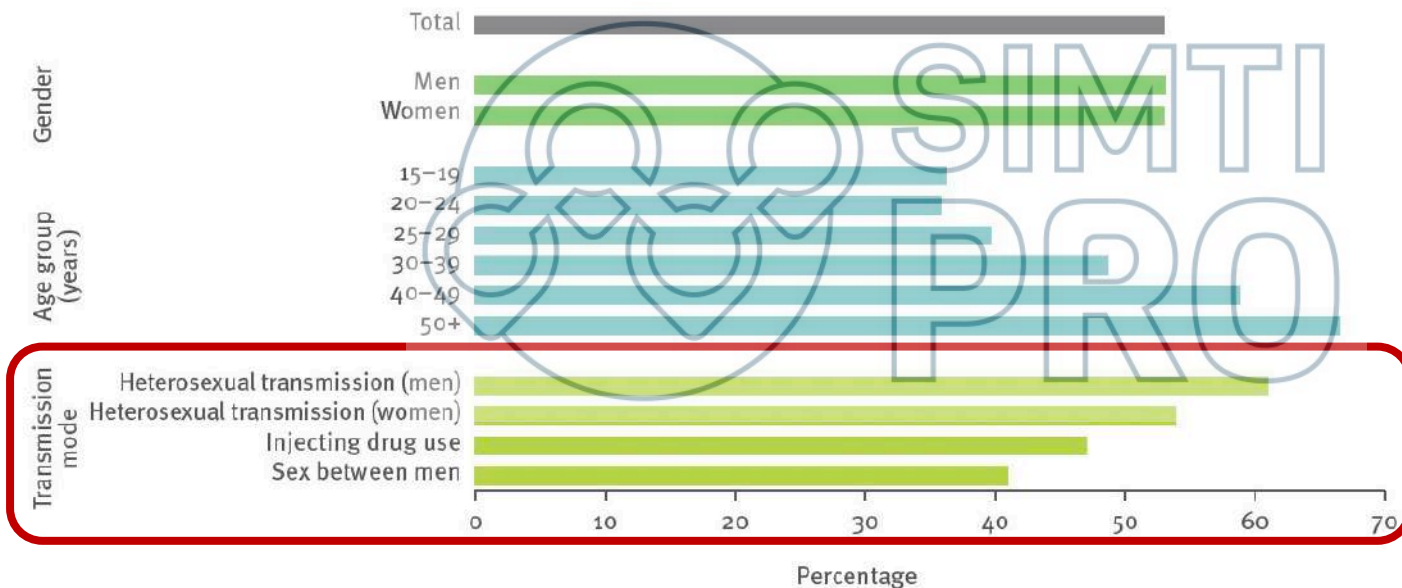


Note: Cases with unknown CD4, acute cases, and previous positives are excluded from this figure. CD4 data from the Russian Federation was excluded as it did not include age, sex, and transmission route breakdowns

European Centre for Disease Prevention and Control/WHO Regional Office for Europe. HIV/AIDS surveillance in Europe 2023 – 2022 data. Stockholm: ECDC; 2023.

HIV Epidemiology in Europe

The percentage of people **diagnosed late** varied across transmission categories and age groups, but was highest for people with reported heterosexual transmission (55.0%) and lowest for men infected through sex with men (41.4%).



Note: Cases with unknown CD4, acute cases, and previous positives are excluded from this figure. CD4 data from the Russian Federation was excluded as it did not include age, sex, and transmission route breakdowns

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HIV Epidemiology in Europe

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Injecting drug use	16.1%	3.8%	2.1%	21.1%	4.3%
Mother-to-child transmission	0.6%	1.1%	0.8%	0.4%	1.2%
Unknown	10.8%	23.6%	52.8%	2.4%	27.3%
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Percentage HIV diagnoses CD4 <350 cells/mm ³	50.6	46.2	44.5	55.1	47.9%
Number of AIDS diagnoses ^c	7 220	1 873	825	4 522	2 349
Rate of AIDS diagnoses per 100 000 population	1.1	0.5	0.4	4.4	0.6

a No data reported by Andorra, Monaco, Turkmenistan and Uzbekistan.

b Migrants defined as originating from outside of the country in which they were diagnosed

c No data reported by Andorra, Bosnia and Herzegovina, Germany, Monaco, North Macedonia, Russian Federation, Sweden, Turkmenistan or Uzbekistan.



European Centre for Disease Prevention and Control/WHO Regional Office for Europe. HIV/AIDS surveillance in Europe 2023 – 2022 data. Stockholm: ECDC; 2023.

HIV Epidemiology in Europe

Table A: Characteristics of new HIV and AIDS diagnoses reported in the WHO European Region, the EU/EEA, and West, Centre and East of the WHO European Region, 2022

	WHO European Region	West	Centre	East	EU/EEA
Reporting countries/number of countries ^a	49/53	21/23	15/15	13/15	30/30
Number of HIV diagnoses	110 486	22 397	8 945	79 144	22 995
Rate of HIV diagnoses per 100 000 population	12.4	5.1	4.5	30.7	5.1
Percentage age 15–24 years	5.7%	8.9%	11.7%	6.2%	8.0%
Percentage age 50+ years	16.7%	21.8%			
Male-to-female ratio	1.8	2.4			
Percentage of migrants ^b	26.7%	52.2%			
Transmission mode					
Sex between men	11.3%	5.2%			
Heterosexual transmission (men)	31.7%	15.1%			
Heterosexual transmission (women)	29.5%	21.0%			
Injecting drug use	16.1%	3.8%			
Mother-to-child transmission	0.6%	1.1%			
Unknown	10.8%	23.6%			
AIDS and late HIV diagnosis					
Percentage HIV diagnoses CD4 <350 cells/mm ³	50.6	46.1			
Number of AIDS diagnoses ^c	7 220	1 800			
Rate of AIDS diagnoses per 100 000 population	1.1	0.8			

a No data reported by Andorra, Monaco, Turkmenistan and Uzbekistan.
 b Migrants defined as originating from outside of the country in which they were reported.
 c No data reported by Andorra, Bosnia and Herzegovina, Germany, Monaco, Norway and Switzerland.

- In 2022, **7 642 people were diagnosed with AIDS**, reported in 44 countries of the WHO European Region.
- The overall rate of AIDS diagnoses in the Region decreased by 54.2% between 2013 and 2022, from 2.4 per 100 000 population (17 486 cases) to 1.1 per 100 000.



HIV Epidemiology in Italy



HIV Epidemiology in Italy

- **Il Centro operativo AIDS (COA) dell'Istituto Superiore di Sanità** dal 1984 raccoglie i dati relativi alle notifiche di AIDS e dal 2008 raccoglie anche i dati delle nuove diagnosi di infezione da HIV, questi ultimi dal 2012 sono a copertura nazionale.
- Il “**Notiziario dell'ISS**” riporta i dati sulle nuove diagnosi di infezione da HIV e sui casi di AIDS segnalati in Italia.
- La sorveglianza delle nuove diagnosi di infezione da HIV riporta i dati relativi alle persone che risultano positive al test HIV per la prima volta.



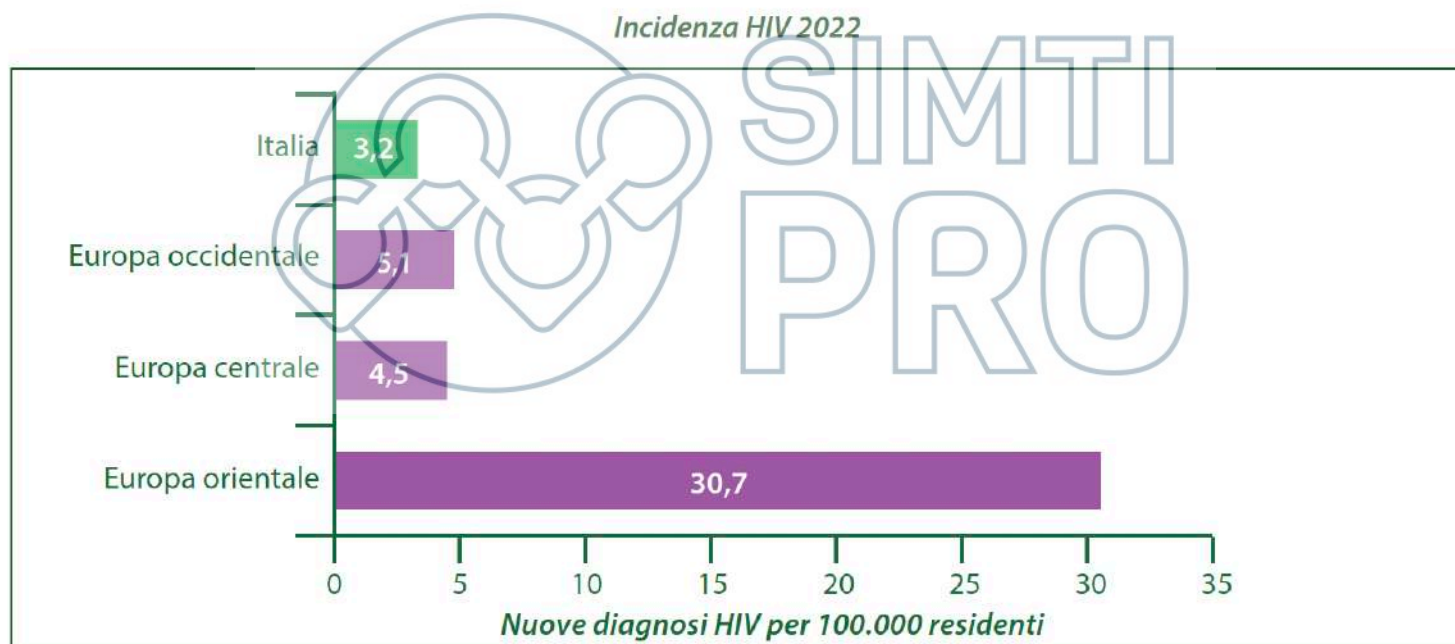
HIV Epidemiology in Italy

- L'incidenza delle nuove diagnosi di infezione da HIV è aumentata nella seconda metà degli anni '80, raggiungendo il picco di 26,8 nuovi casi per 100.000 residenti nel 1987 per poi diminuire gradualmente negli anni '90 fino a stabilizzarsi dal 2000 intorno a un'incidenza media di 6-7 casi per 100.000 residenti.



Incidenza HIV in Italia

- Nel **2022** sono state segnalate **1888** nuove diagnosi di infezione da HIV, pari a **un'incidenza di 3,2 nuovi casi** per 100.000 residenti, un valore che pone l'Italia al di sotto della media osservata tra i Paesi dell'Europa occidentale e dell'Unione Europea (5,1 nuove diagnosi per 100.000 residenti).



Incidenza HIV: numero di nuove diagnosi HIV per 100.000 residenti in Italia e nelle principali aree geografiche europee.
Fonti: Sistema di Sorveglianza HIV nazionale, ECDC/WHO. HIV/AIDS Surveillance in Europe 2023-2022 data (1)

Not Ist Super Sanità 2023;36(11):3-59

Incidenza HIV in Italia

- **L'incidenza delle nuove diagnosi HIV è in diminuzione dal 2012**, con una riduzione più evidente dal 2018 al 2020 e un leggero aumento negli ultimi due anni post-COVID-19.
- Nell'ultimo biennio, sebbene si osservi un aumento del numero di diagnosi, le segnalazioni si assestano al di sotto del numero registrato nel 2019 (-25%).

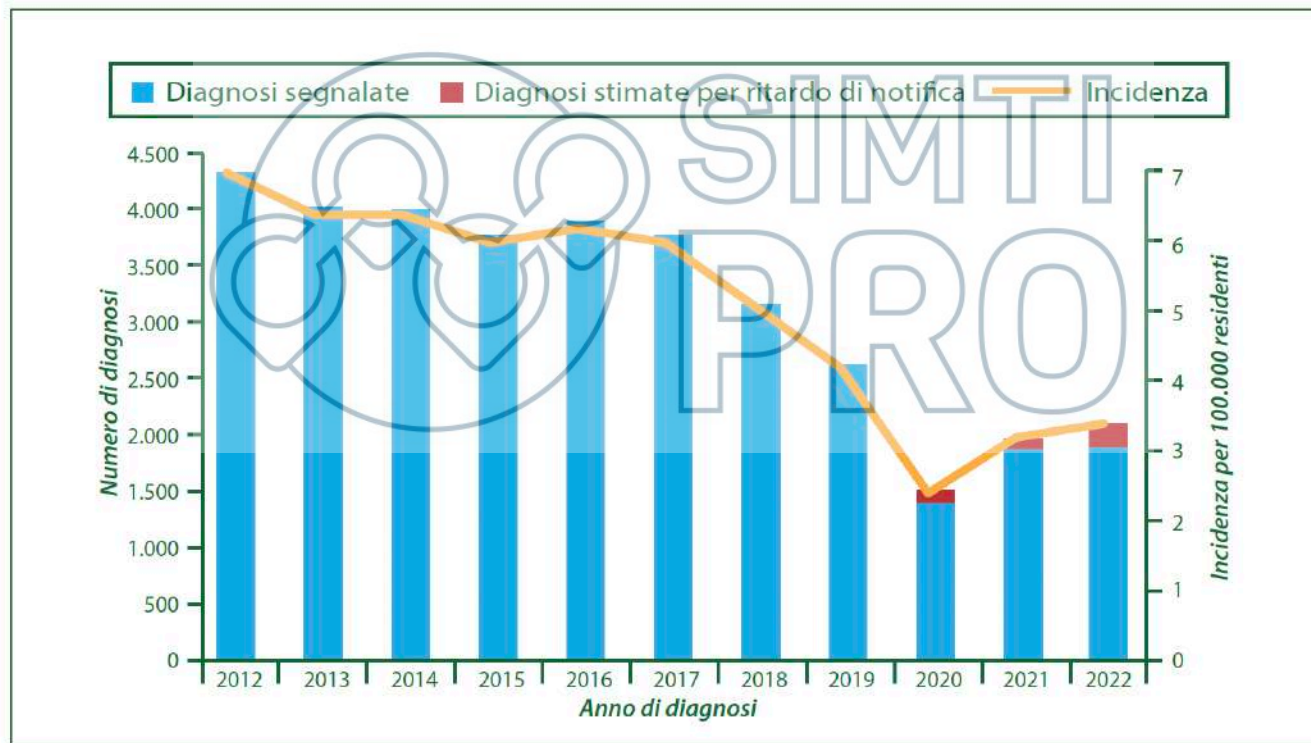
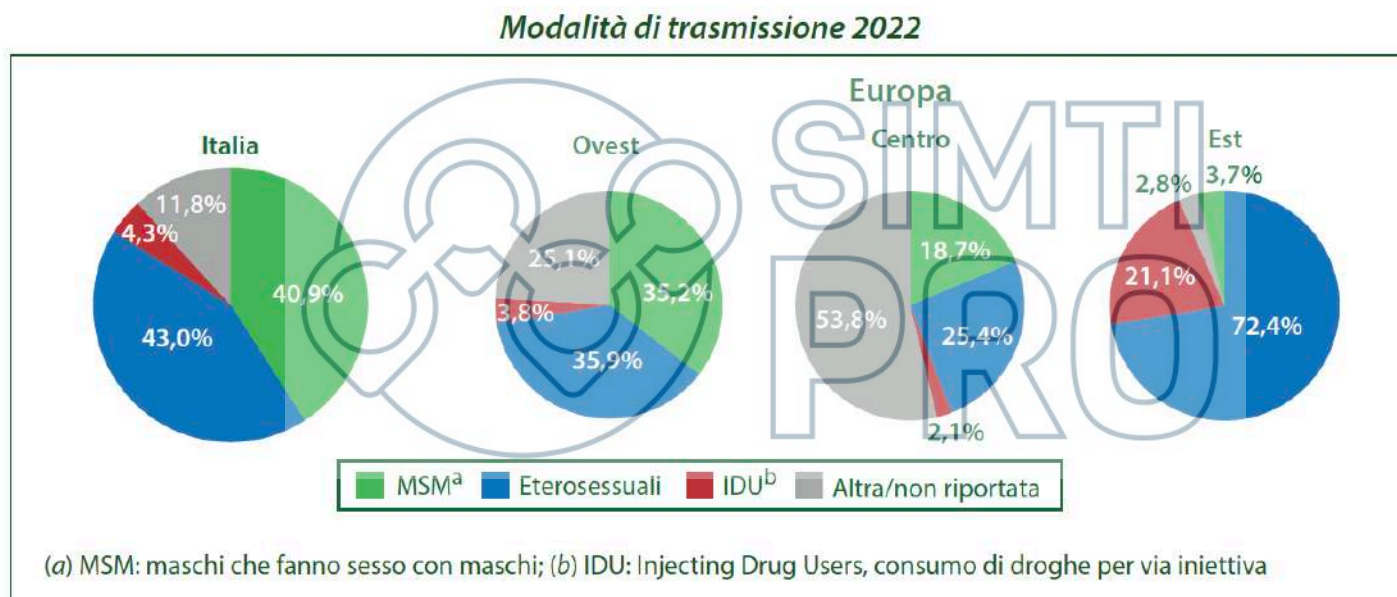


Figura 1 - Nuove diagnosi di infezione da HIV e incidenze corrette per ritardo di notifica (2012-2022)

Not Ist Super Sanità 2023;36(11):3-59

Incidenza HIV in Italia

- Il trend in riduzione del numero di nuove diagnosi HIV interessa tutte le modalità di trasmissione.



Distribuzione percentuale delle nuove diagnosi di infezione da HIV per modalità di trasmissione 2022.

Fonti: Sistema di Sorveglianza HIV nazionale, ECDC/WHO. *HIV/AIDS Surveillance in Europe 2023-2022 data (1)*

Incidenza HIV in Italia

Nel periodo 2012-2022 sono state segnalate a livello nazionale **33.527** nuove diagnosi di infezione da HIV.

Tabella 1 - Nuove diagnosi di infezione da HIV (numero e variazioni % 2018-2022) per Regione di segnalazione e Incidenza per anno di diagnosi (2012-2022)

Regione	Anno inizio raccolta dati individuali												Variazioni percentuali					Totale
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2019 vs 2018	2020 vs 2019	2021 vs 2020	2022 vs 2021	2022 vs 2019	
Piemonte	1999	271	320	276	238	255	266	192	136	92	154	160	-29	-32	+67	+4	+18	2.360
Valle d'Aosta	2008	8	6	7	3	8	4	4	9	7	6	4	+125	-22	-14	-33	-56	66
Liguria	2001	108	77	97	115	116	116	99	74	72	61	60	-25	-3	-15	-2	-19	995
Lombardia	2009	1.103	997	879	872	779	740	691	560	119	243	218	-19	-79	+104	-10	-61	7.201
PA ^a di Trento	2010	39	23	24	15	33	24	20	30	19	6	4	+50	-37	-68	-33	-87	237
PA ^a di Bolzano	2010	17	18	20	15	19	15	4	7	8	4	11	+75	+14	-50	+175	+57	138
Veneto	2000	314	279	285	271	228	242	166	160	104	105	78	-4	-35	+1	-26	-51	2.232
Friuli Venezia Giulia	2010	71	65	76	47	54	48	27	46	28	29	30	+70	-39	+4	+3	-35	521
Emilia-Romagna	2006	436	345	377	323	329	312	252	244	168	203	206	-3	-31	+21	+1	-16	3.195
Toscana	2009	296	326	333	291	353	280	233	185	154	158	156	-21	-17	+3	-1	-16	2.765
Umbria	2009	67	57	61	56	54	59	42	38	38	27	24	-10	0	-29	-11	-37	523
Marche	2007	85	60	88	72	118	95	64	58	25	49	43	-9	-57	+96	-12	-26	757
Lazio	1985	645	618	622	554	586	521	463	351	227	323	293	-24	-35	+42	-9	-17	5.203
Abruzzo	2006	47	58	66	54	53	67	85	39	12	24	48	-54	-69	+100	+100	+23	553
Molise	2010	3	7	12	10	12	27	13	7	6	5	6	-46	-14	-17	+20	-14	108
Campania	2008	243	191	180	202	188	227	239	159	113	173	210	-33	-29	+53	+21	+32	2.125
Puglia	2007	131	133	121	147	169	194	155	162	86	91	130	+5	-47	+6	+43	-20	1.519
Basilicata	2010	13	5	14	16	17	18	7	8	0	6	12	+14	-100	n.c. ^b	+100	+50	116
Calabria	2009	9	12	24	30	17	12	9	4	0	11	7	-56	-100	n.c. ^b	-36	+75	135
Sicilia	2009	186	201	229	236	281	282	215	201	109	143	157	-7	-46	+31	+10	-22	2.240
Sardegna	2012	88	60	63	58	54	61	49	26	19	29	31	-47	-27	+53	+7	+19	538
Totale		4.180	3.858	3.854	3.625	3.723	3.610	3.029	2.504	1.406	1.850	1.888	-17	-44	+32	+2	-25	33.527
Incidenza per 100.000 residenti (calcolata per anno di diagnosi sulla popolazione residente)		7,0	6,4	6,4	6,0	6,2	6,0	5,1	4,2	2,4	3,1	3,2						

(a) Provincia Autonoma; (b) non calcolabile

Not Ist Super Sanità 2023;36(11):3-59

Incidenza HIV in Italia

La Regione che nel 2022 ha segnalato il maggior numero di casi è stata il **Lazio** (n. 293), a seguire la **Lombardia** (n. 218), la **Campania** (n. 210) e l'**Emilia-Romagna** (n. 206).

Tabella 1 - Nuove diagnosi di infezione da HIV (numero e variazioni % 2018-2022) per Regione di segnalazione e Incidenza per anno di diagnosi (2012-2022)

Regione	Anno inizio raccolta dati individuali												Variazioni percentuali					Totale
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2019 vs 2018	2020 vs 2019	2021 vs 2020	2022 vs 2021	2022 vs 2019	
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Valle d'Aosta	2008	8	6	7	3	8	4	4	9	7	6	4	+125	-22	-14	-33	-56	66
Liguria	2001	108	77	97	115	116	116	99	74	72	61	60	-25	-3	-15	-2	-19	995
Lombardia	2009	1.103	997	879	872	779	740	691	560	119	243	218	-19	-79	+104	-10	-61	7.201
PA ^a di Trento	2010	39	23	24	15	33	24	20	30	19	6	4	+50	-37	-68	-33	-87	237
PA ^a di Bolzano	2010	17	18	20	15	19	15	4	7	8	4	11	+75	+14	-50	+175	+57	138
Veneto	2000	314	279	285	271	228	242	166	160	104	105	78	-4	-35	+1	-26	-51	2.232
Friuli Venezia Giulia	2010	71	65	76	47	54	48	27	46	28	29	30	+70	-39	+4	+3	-35	521
Emilia-Romagna	2006	436	345	377	323	329	312	252	244	168	203	206	-3	-31	+21	+1	-16	3.195
Toscana	2009	296	326	333	291	353	280	233	185	154	158	156	-21	-17	+3	-1	-16	2.765
Umbria	2009	67	57	61	56	54	59	42	38	38	27	24	-10	0	-29	-11	-37	523
Marche	2007	85	60	88	72	118	95	64	58	25	49	43	-9	-57	+96	-12	-26	757
Lazio	1985	645	618	622	554	586	521	463	351	227	323	293	-24	-35	+42	-9	-17	5.203
Abruzzo	2006	47	58	66	54	53	67	85	39	12	24	48	-54	-69	+100	+100	+23	553
Molise	2010	3	7	12	10	12	27	13	7	6	5	6	-46	-14	-17	+20	-14	108
Campania	2008	243	191	180	202	188	227	239	159	113	173	210	-33	-29	+53	+21	+32	2.125
Puglia	2007	131	133	121	147	169	194	155	162	86	91	130	+5	-47	+6	+43	-20	1.519
Basilicata	2010	13	5	14	16	17	18	7	8	0	6	12	+14	-100	n.c. ^b	+100	+50	116
Calabria	2009	9	12	24	30	17	12	9	4	0	11	7	-56	-100	n.c. ^b	-36	+75	135
Sicilia	2009	186	201	229	236	281	282	215	201	109	143	157	-7	-46	+31	+10	-22	2.240
Sardegna	2012	88	60	63	58	54	61	49	26	19	29	31	-47	-27	+53	+7	+19	538
Totale		4.180	3.858	3.854	3.625	3.723	3.610	3.029	2.504	1.406	1.850	1.888	-17	-44	+32	+2	-25	33.527
Incidenza per 100.000 residenti (calcolata per anno di diagnosi sulla popolazione residente)		7,0	6,4	6,4	6,0	6,2	6,0	5,1	4,2	2,4	3,1	3,2						

(a) Provincia Autonoma; (b) non calcolabile

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Incidenza HIV in Italia

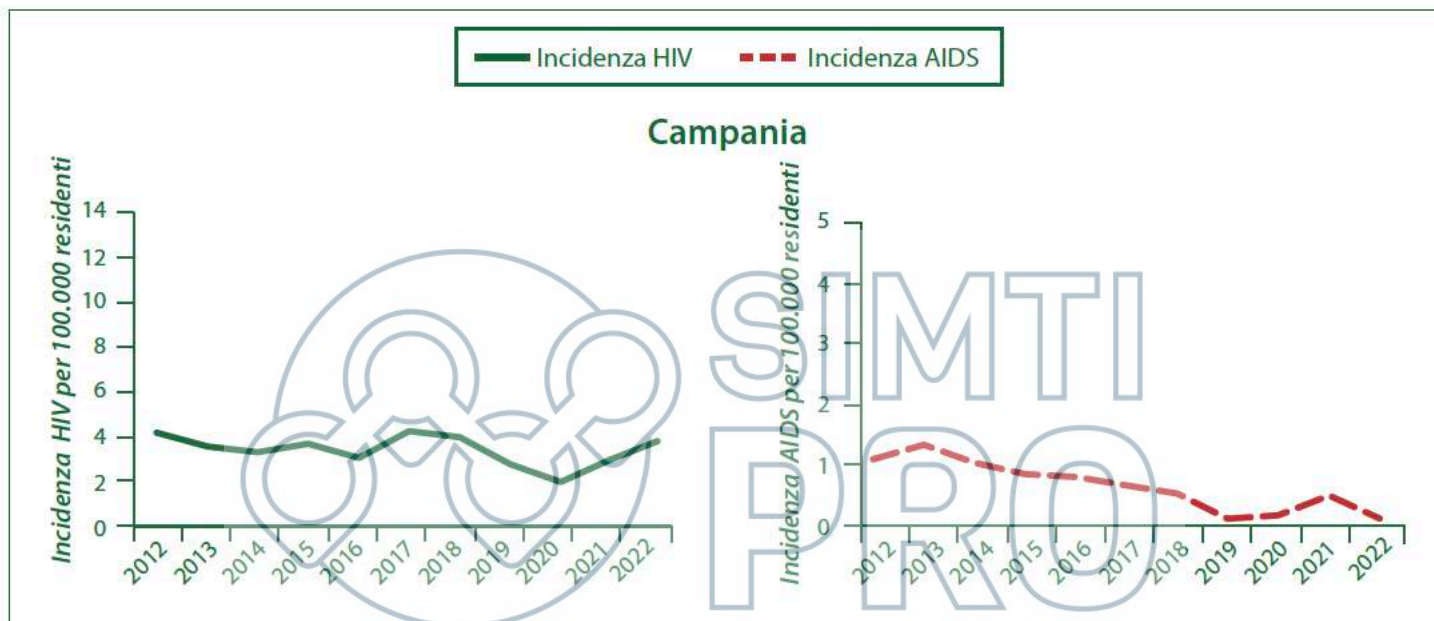
Nel **2022**, le incidenze più alte per 100.000 residenti sono state registrate nelle Regioni: **Lazio** (4,8), Toscana (4,0), Campania (3,9), Abruzzo (3,9) ed Emilia-Romagna (3,8).



Figura 3 - Incidenza delle nuove diagnosi di infezione da HIV (per 100.000 residenti) per Regione di residenza (2022)

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Incidenza HIV in Italia



Appendice - Incidenza HIV e incidenza AIDS per 100.000 residenti per Regione di residenza (dati non corretti per ritardo di notifica) (2012-2022)

Incidenza HIV in Italia

Considerando le Province con più alto numero di diagnosi nel 2022 (Roma, Milano, Torino, Napoli, Brescia e Catania), si osserva soprattutto per Roma e Milano un rilevante decremento fino al 2020, successivamente si osserva un aumento in tutte le province a eccezione di quella di Milano.

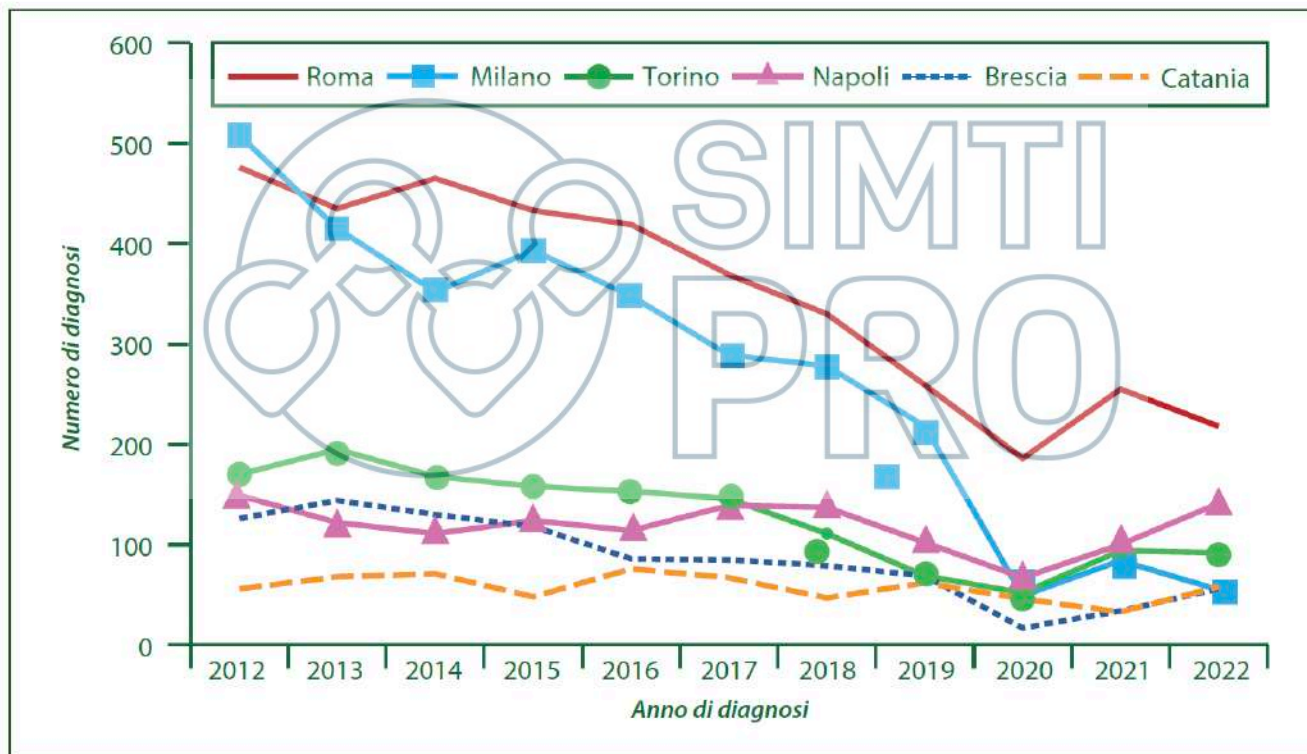


Figura 4 - Nuove diagnosi di infezione da HIV nelle Province con il maggior numero di diagnosi per anno (2012-2022)

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Incidenza HIV in Italia

Dal 2012 l'incidenza mostra un andamento in diminuzione sia nei maschi che nelle femmine.

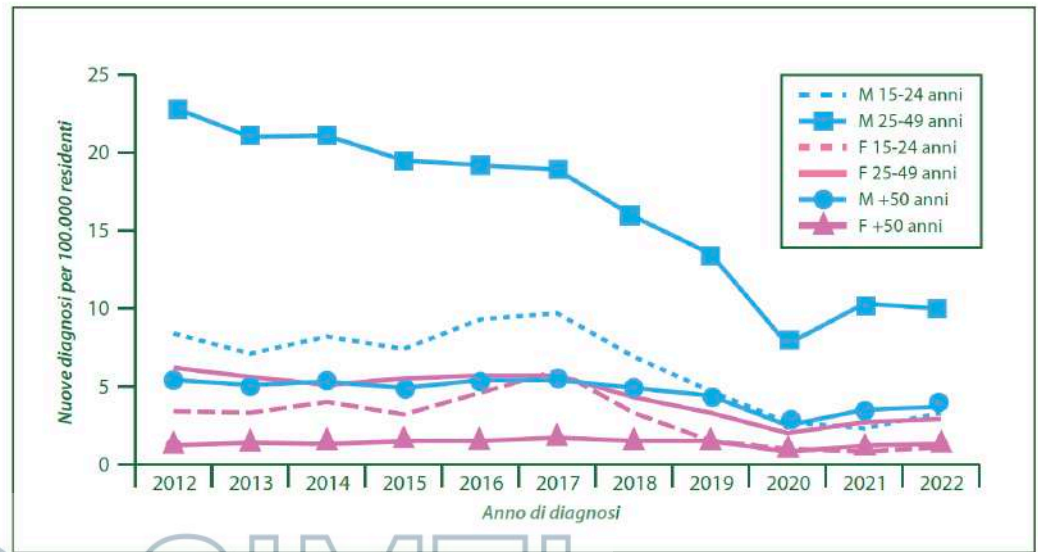


Figura 2 - Incidenza delle nuove diagnosi di infezione da HIV per genere, età e anno di diagnosi

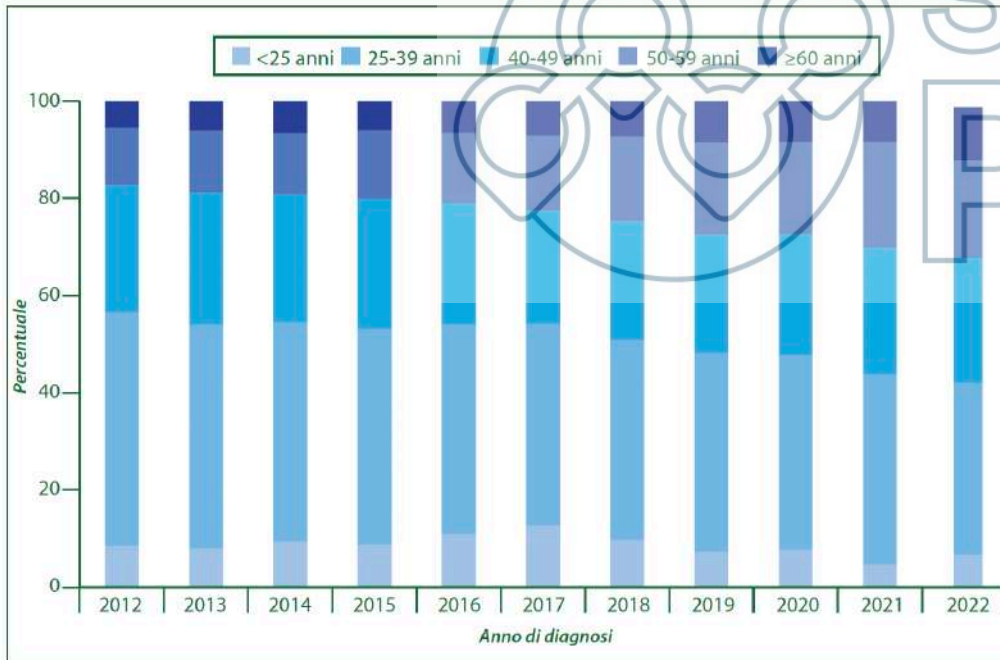


Figura 5 - Nuove diagnosi di infezione da HIV per classe di età e anno di diagnosi (2012-2022)

Nel 2022 l'incidenza più elevata di nuove diagnosi HIV si riscontra nella fascia di età **30-39 anni**, mentre fino al 2020 si riscontrava nella fascia di et. 25-29 anni.

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Incidenza HIV in Italia

Le incidenze nei maschi presentano valori da due a quattro volte superiori rispetto a quelle delle femmine con un incremento all'aumentare dell'età.

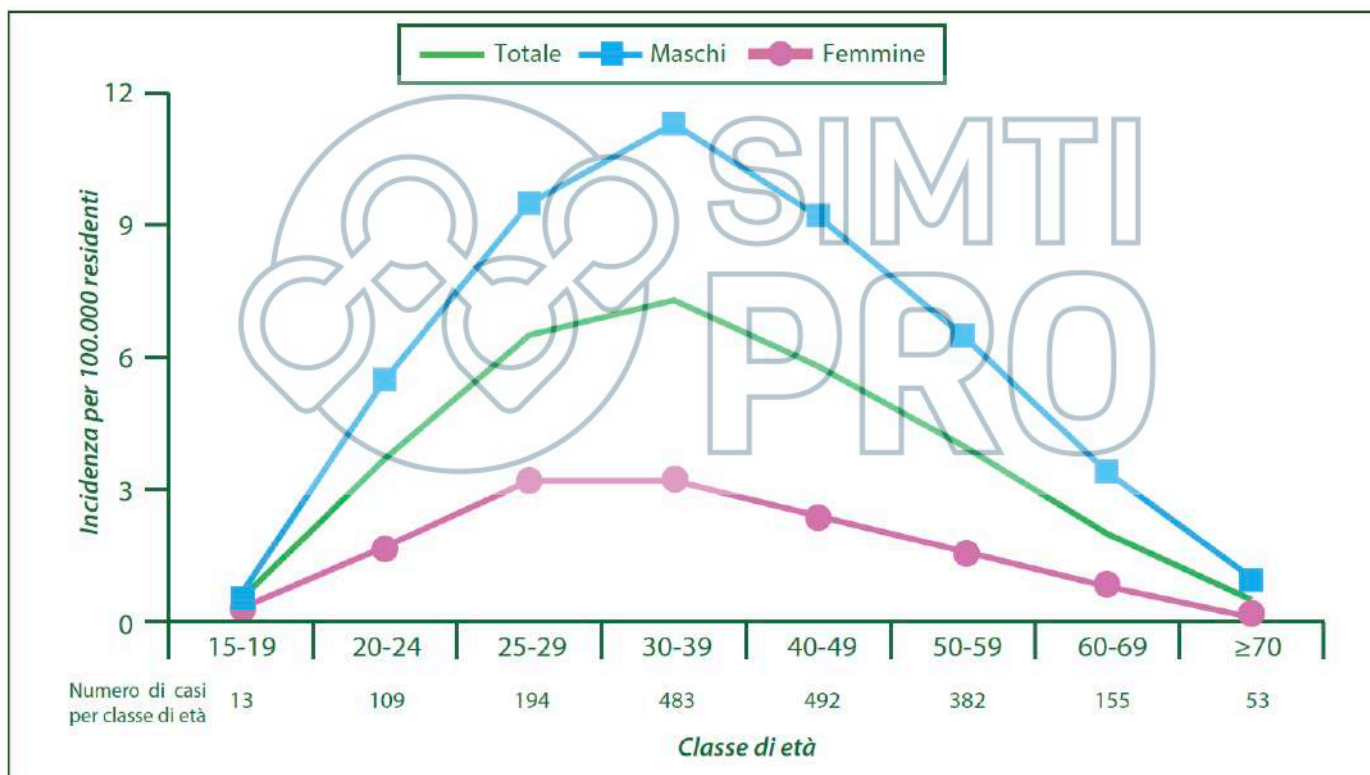


Figura 6 - Incidenza delle nuove diagnosi di infezione da HIV per classe di età e genere (2022)

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Modalità di trasmissione

Dal 2012 al 2022 il numero più elevato di diagnosi è attribuibile alla **trasmissione sessuale** e, in ordine decrescente, a **MSM**, *maschi eterosessuali e femmine eterosessuali*.

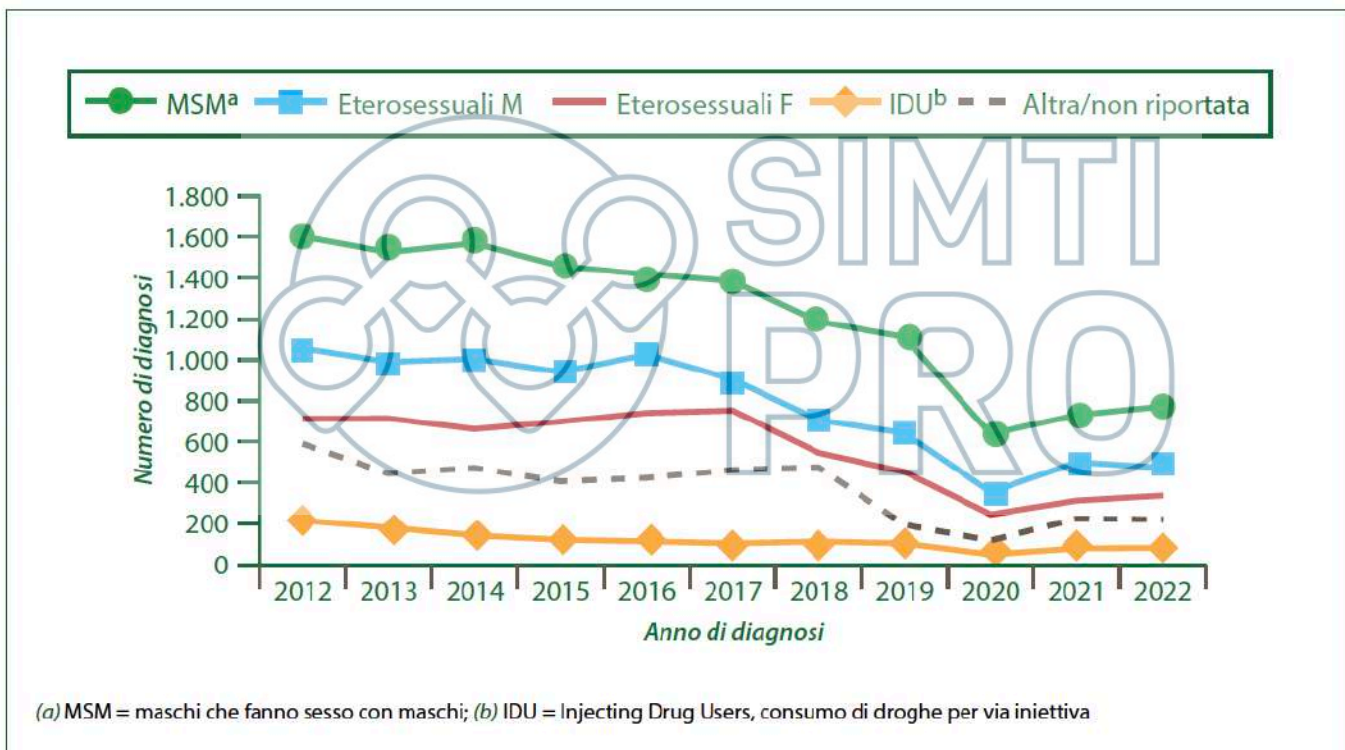


Figura 9 - Nuove diagnosi di infezione da HIV per modalità di trasmissione e anno di diagnosi (2012-2022)

Modalità di trasmissione

Dal 2012 la percentuale dei casi attribuibili a trasmissione eterosessuale è rimasta sostanzialmente stabile intorno al 43%, mentre **la proporzione di casi attribuibili a trasmissione tra MSM nello stesso periodo è passata da 38,3% nel 2012 a 40,9% nel 2022.**

Nel 2022 gli IDU rappresentano il 4,3% delle nuove diagnosi con proporzioni più alte negli italiani rispetto agli stranieri, rispettivamente 4,9% e 3,2%.

Tabella 5 - Nuove diagnosi di infezione da HIV in italiani e stranieri per genere e modalità di trasmissione. Età mediana per genere e modalità di trasmissione (2022)

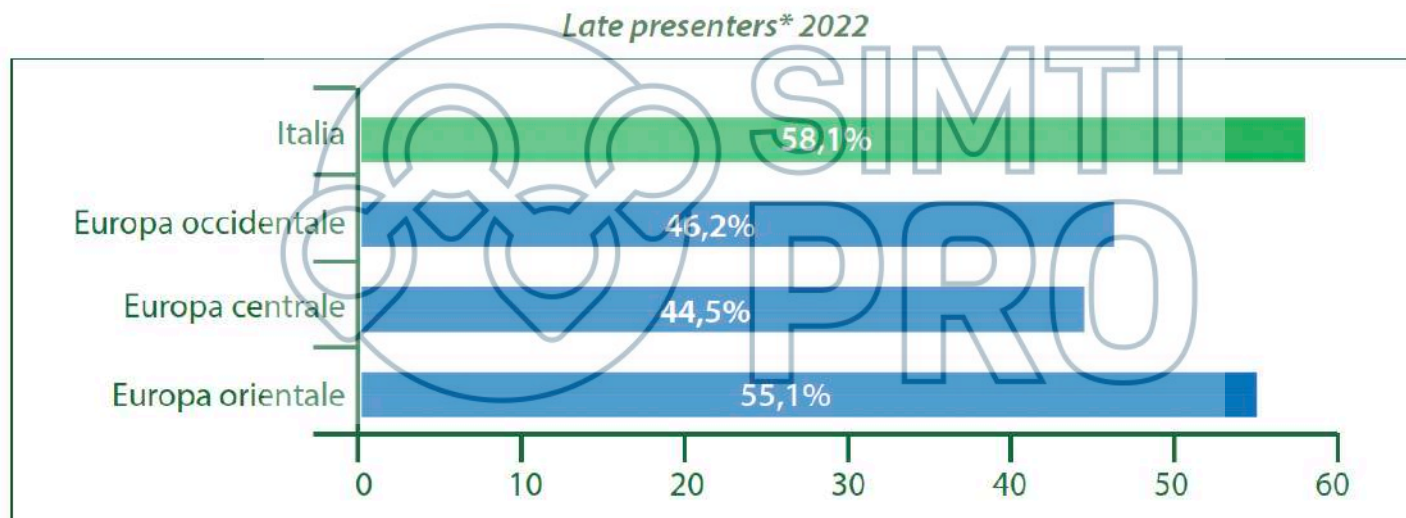
	Italiani		Età mediana in anni e IQR ^a	Stranieri		Età mediana in anni e IQR ^a	Nazionalità non riportata	Totale		Età mediana in anni e IQR ^a
	n.	%		n.	%			n.	%	
Genere										
Maschi	1.110	85,9	44 34-54	367	62,6	38 30-48	9	1.486	78,7	43 33-53
Femmine	182	14,1	45 34-54	219	37,4	39 31-48	1	402	21,3	41 32-51
Totale	1.292	100,0	44 34-54	586	100,0	38 30-48	10	1.888	100,0	42 33-52
Modalità di trasmissione										
MSM^b	604	46,7	40 31-51	167	28,5	36 28-43	2	773	40,9	39 31-50
Eterosessuali maschi	330	25,5	48 40-58	138	23,5	42 34-52	6	474	25,1	47 37-56
Eterosessuali femmine	152	11,8	45 34-55	185	31,6	37 29-47	1	338	17,9	40 31-50
IDU ^c	63	4,9	44 37-52	19	3,2	36 29-49	0	82	4,3	43 36-51
Altra ^d /non riportata	143	11,1	45 36-55	77	13,1	43 30-55	1	221	11,7	45 33-55
Totale	1.292	100,0	44 34-54	586	100,0	38 30-48	10	1.888	100,0	42 33-52

(a) IQR = Range Interquartile; (b) MSM = maschi che fanno sesso con maschi; (c) IDU = Injecting Drug Users, consumo di droghe per via iniettiva; (d) comprende 7 casi di trasmissione verticale (6 casi nella classe di età 0-2 anni e 1 nella classe 20-24 anni) e 3 casi di trasmissione tramite trasfusione di sangue in persone di nazionalità straniera

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Arrivo tardivo alla diagnosi

Dal 2015 aumenta la quota di persone a cui viene diagnosticata tardivamente l'infezione da HIV (con bassi CD4 o in AIDS): nel 2022, i 2/3 degli eterosessuali maschi e più della metà delle eterosessuali femmine sono stati diagnosticati con CD4 <350 cell/ μ L.



(*) *Late presenters*: nuove diagnosi di infezione da HIV con numero di linfociti CD4 <350 cell/ μ L.

Fonti: Sistema di Sorveglianza HIV nazionale, ECDC/WHO. HIV/AIDS Surveillance in Europe 2023-2022 data (1)

Arrivo tardivo alla diagnosi

Il **58%** delle nuove diagnosi di infezione da HIV presentano un numero di linfociti CD4 <350 cell/ μ L e, tra queste, il **42%** è in AIDS.

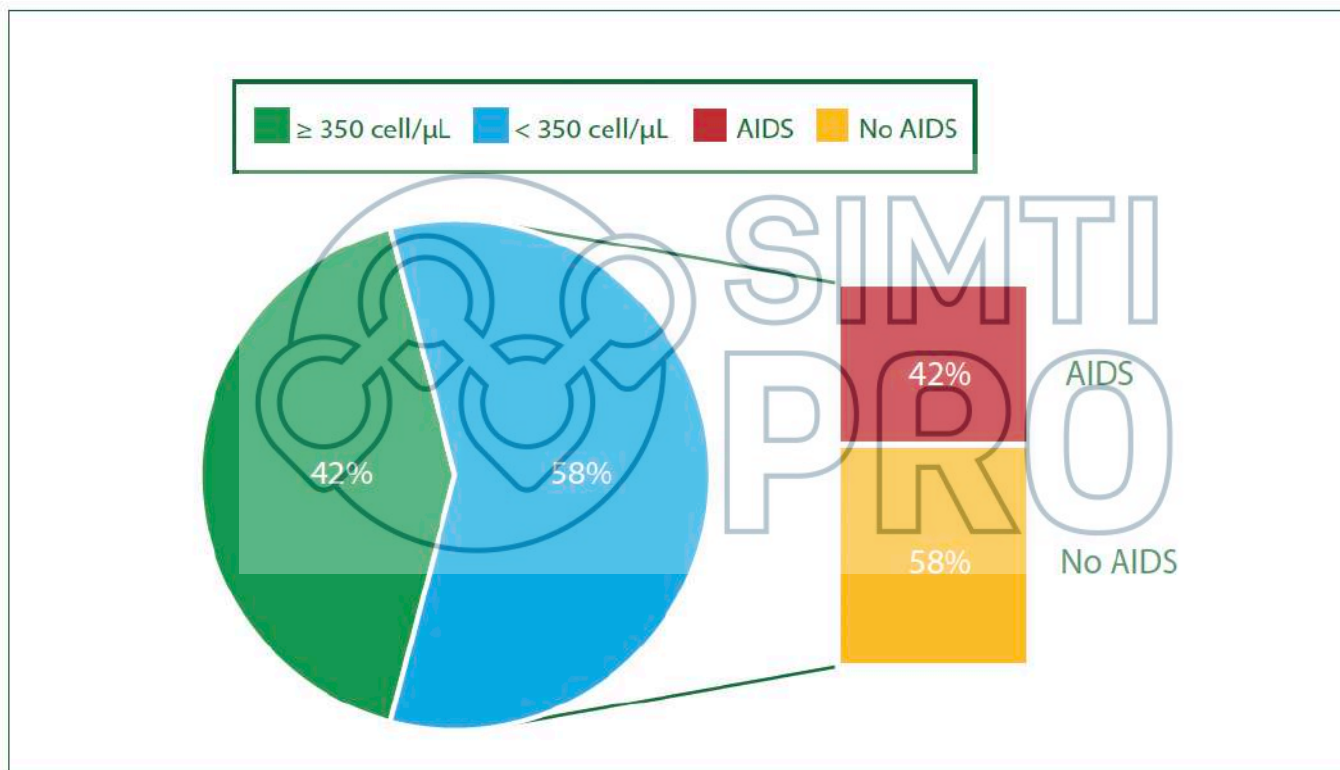


Figura 12 - Proporzioe delle nuove diagnosi di infezione da HIV per numero di linfociti CD4 e diagnosi di AIDS (2022)

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Arrivo tardivo alla diagnosi

- Si osserva tra gli **eterosessuali maschi** la più alta quota di persone a cui viene diagnosticata tardivamente l'infezione da HIV, con bassi CD4 e/o diagnosi di AIDS.
- Le più basse proporzioni di diagnosi tardive si osservano negli MSM e negli IDU.

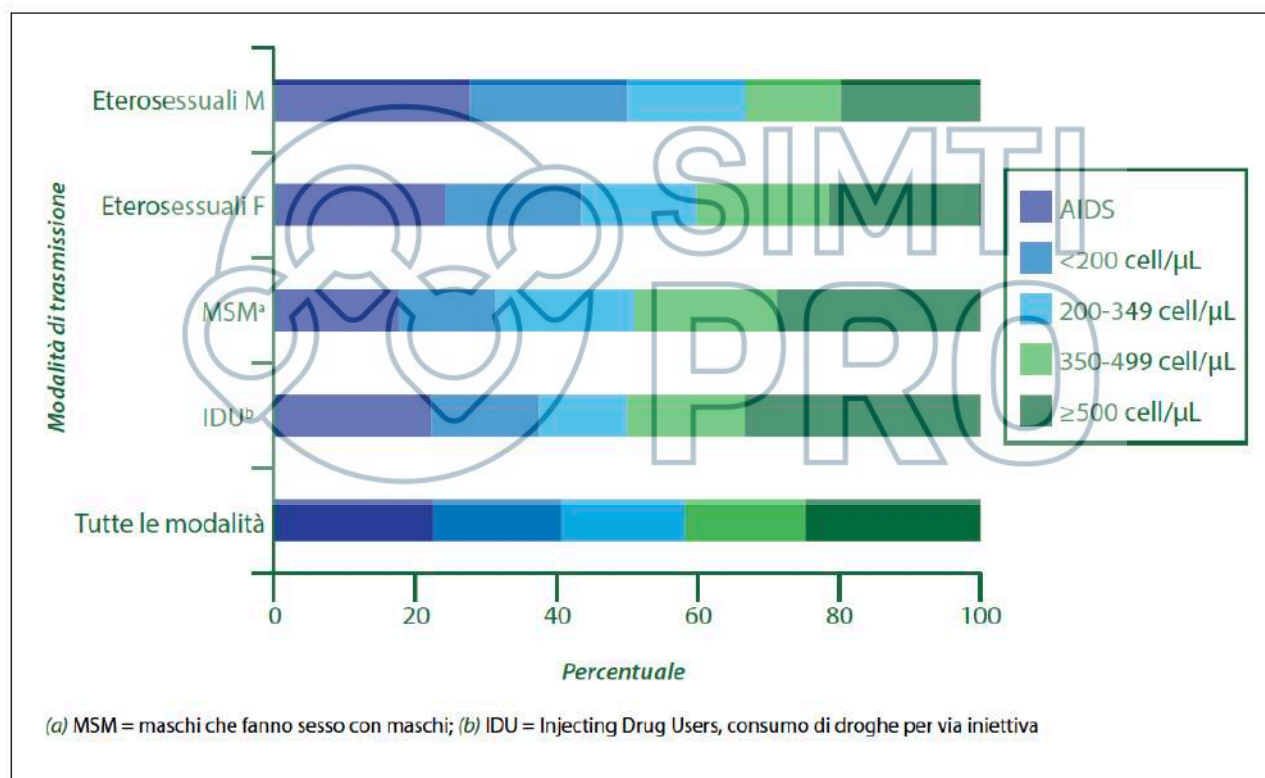


Figura 13 - Nuove diagnosi di infezione da HIV per classi di CD4, diagnosi di AIDS e modalità di trasmissione (2022)

Not Ist Super Sanità 2023;36(11):3-59

Sorveglianza delle nuove diagnosi di AIDS

- Nel 2022, sono state notificate **403 nuove diagnosi di AIDS**, pari a **un'incidenza di 0,7** per 100.000 residenti.
- Le Regioni con incidenza più elevata sono la Toscana e il Lazio. Si osserva un gradiente Nord-Sud nella diffusione dell'AIDS.

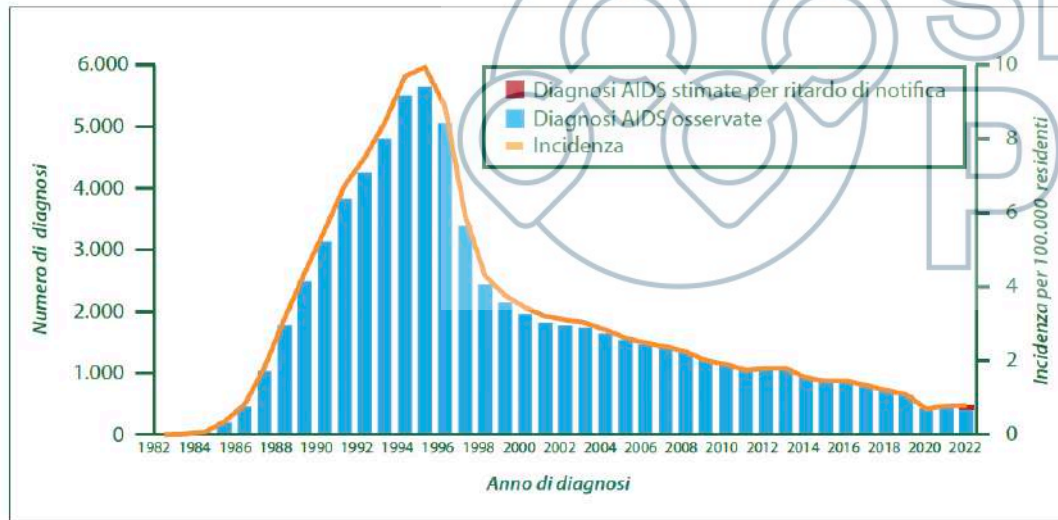


Figura 15 - Nuove diagnosi AIDS e incidenze corrette per ritardo di notifica (1982-2022)

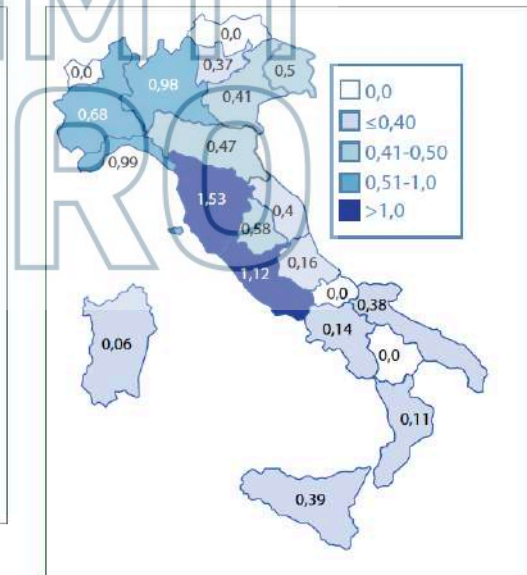


Figura 16 - Incidenza delle nuove diagnosi AIDS (per 100.000 residenti) per Regione di residenza (2022)

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Sorveglianza delle nuove diagnosi di AIDS

Tra le patologie indicative di AIDS più comuni si osserva la **polmonite da *Pneumocystis jirovecii***, l'infezione da **Cytomegalovirus** e la **Wasting syndrome** sono state le più frequenti nel 2022, rispettivamente 21,9%, 16,6% e 12,9%. Proporzioni analoghe si osservano per genere e modalità di trasmissione.

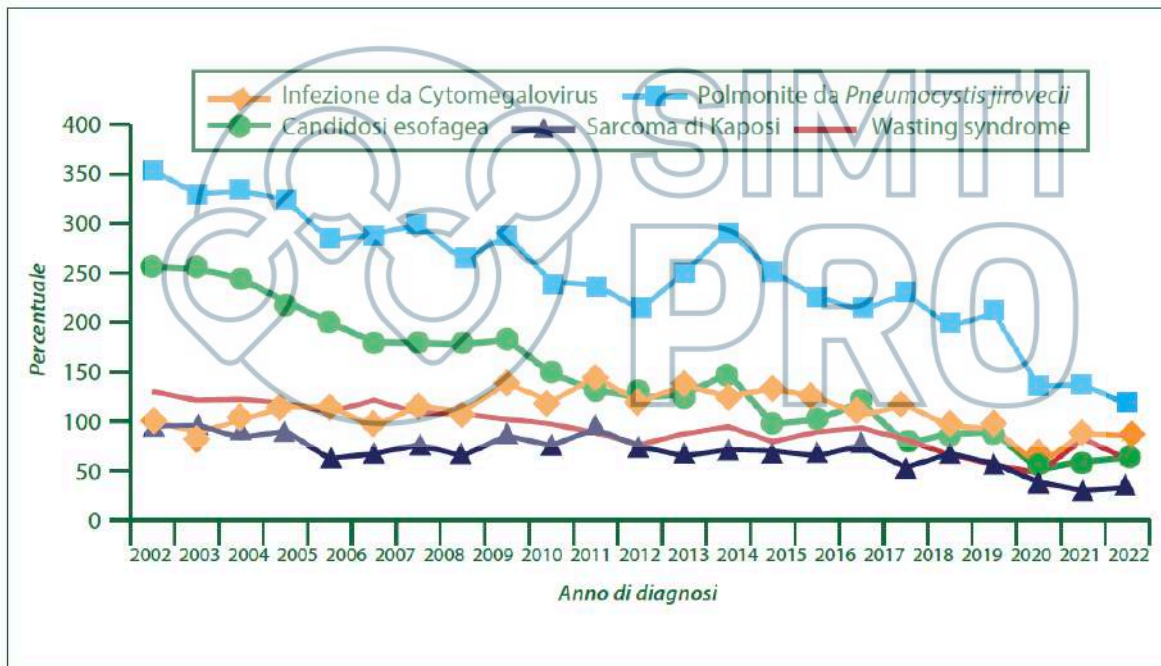


Figura 18 - Andamento temporale delle più comuni patologie indicative di AIDS in persone che non hanno effettuato trattamenti antiretrovirali pre-AIDS (2000-2022)

Motivo di effettuazione del test

Nel 2022, più del 40% delle persone con nuova diagnosi HIV ha eseguito il test per **sospetta patologia HIV correlata o presenza di sintomi HIV**.

Altri principali motivi di esecuzione del test sono stati: comportamenti sessuali a rischio di infezione (24,3%), controlli di routine e iniziative di screening a seguito di campagne informative (8,9%), accertamenti per altra patologia (4,5%), diagnosi di IST o sospetta IST (4,4%) e ricovero ospedaliero (3,2%).

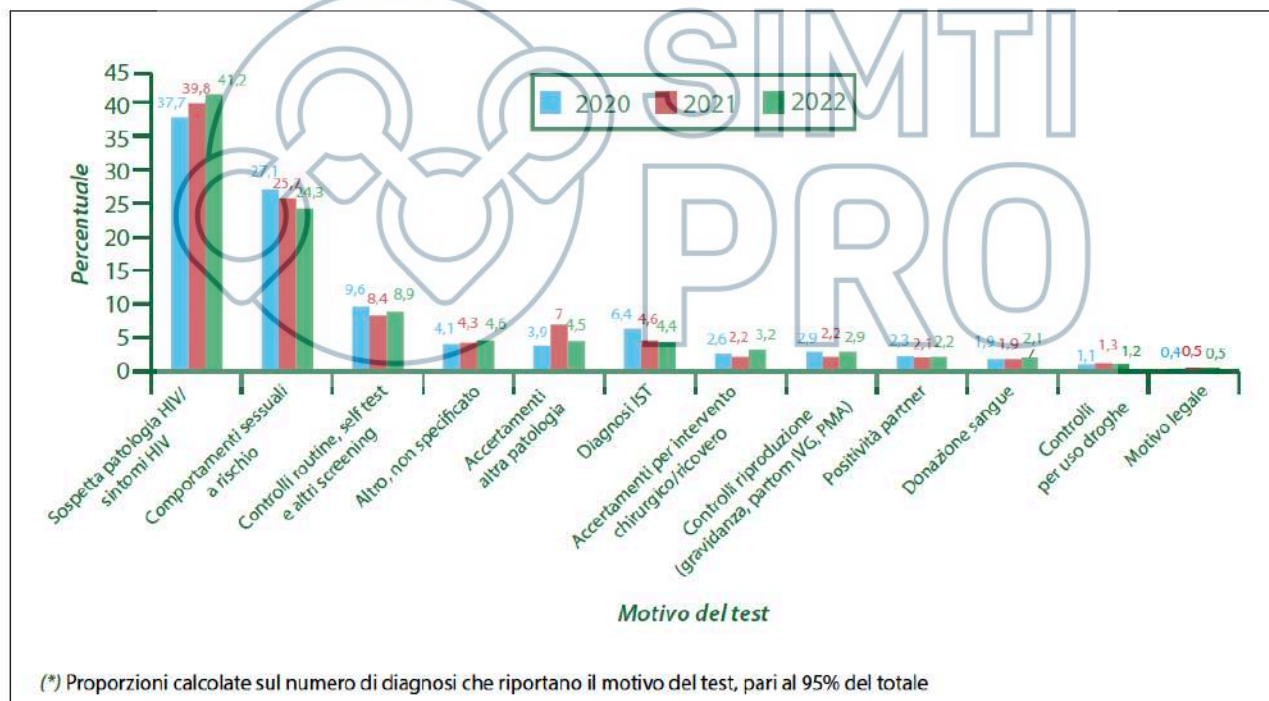


Figura 14 - Nuove diagnosi per motivo di effettuazione del test HIV* (2020-2022) *Not Ist Super Sanità 2023;36(11):3-59*

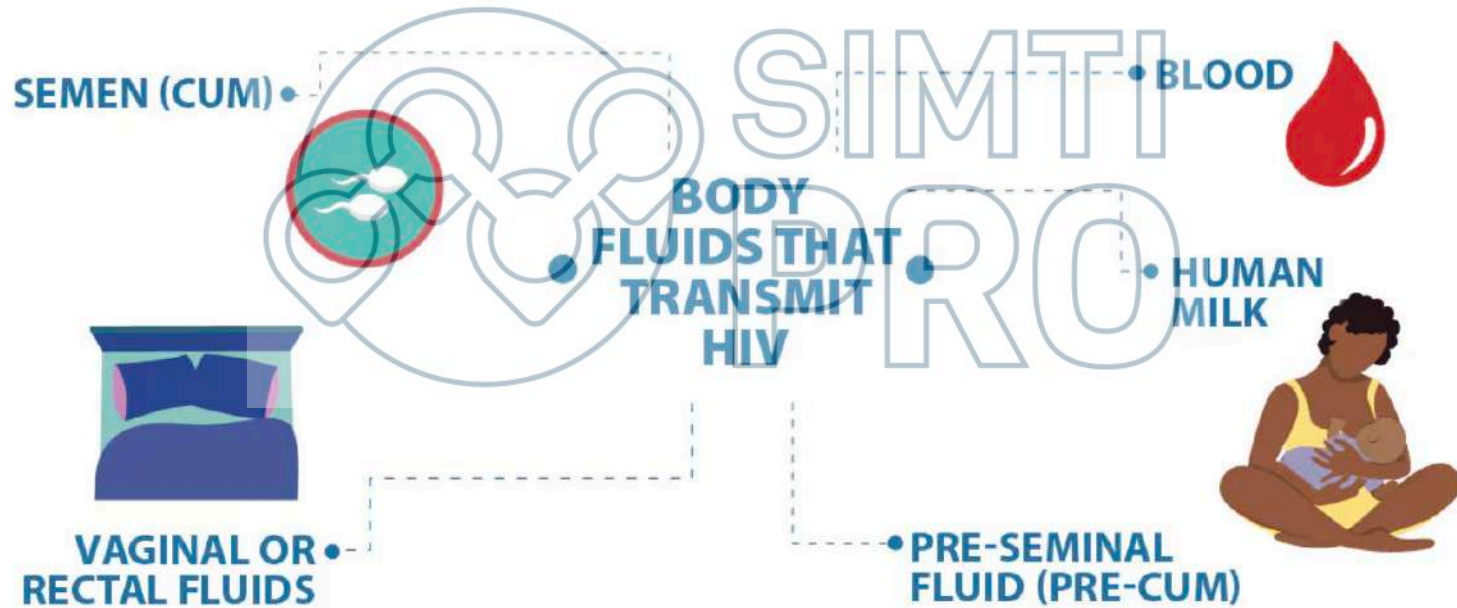


 **SIMTI
PRO**

HIV Transmission

HIV Transmission

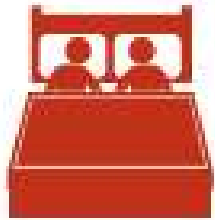
Only **certain body fluids** from a person who has HIV **can transmit HIV**.



<https://www.cdc.gov/hiv/basics/hiv-transmission/not-transmitted.html>

HIV Transmission

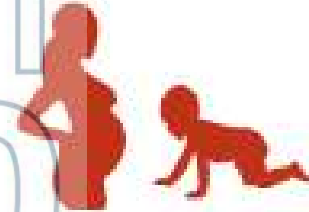
HIV CAN BE TRANSMITTED BY



Sexual Contact



Sharing Needles to Inject Drugs



Mother to Baby During Pregnancy, Birth, or Breastfeeding

<https://stanfordhealthcare.org/medical-conditions/sexual-and-reproductive-health/hiv-aids/causes/risk-of-exposure.html>

HIV Transmission

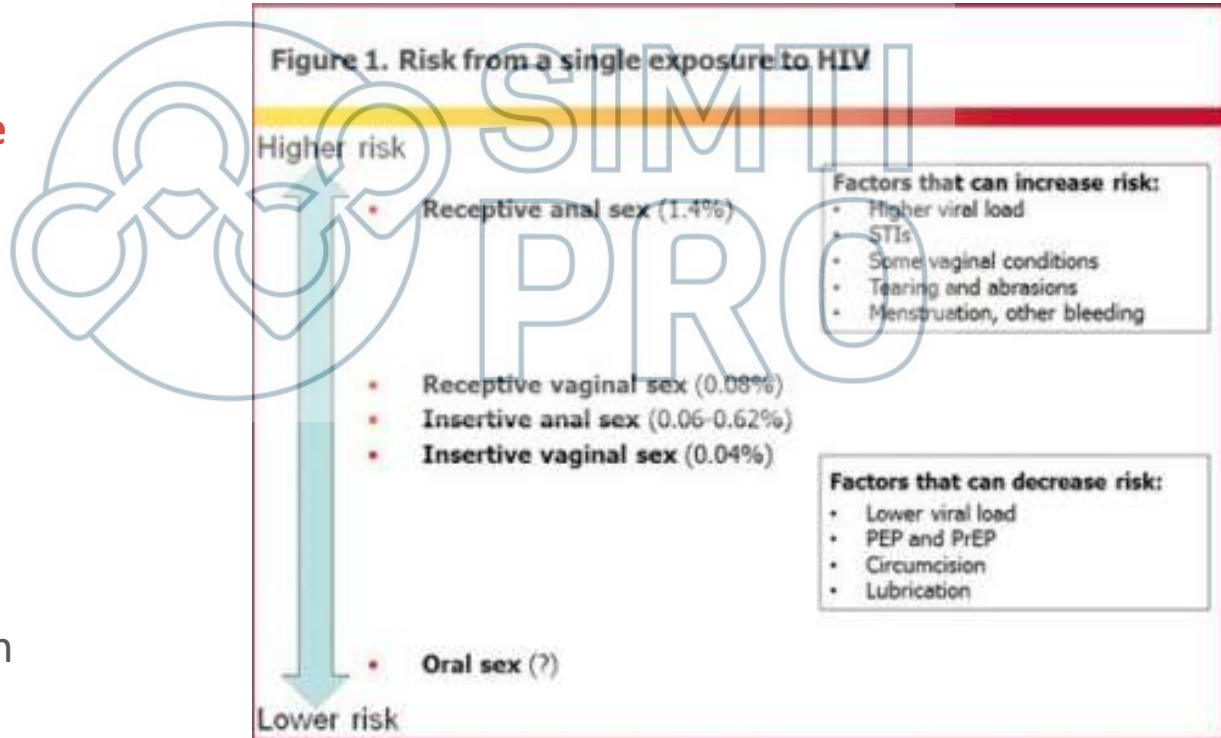


Sexual Contact

All exposures are not equal

The results of several meta-analyses suggest that some types of sex carry on average a higher risk of HIV transmission than others.

- HIV is spread most commonly by sexual contact with an infected partner.
- The virus enters the body through the lining of the vagina, vulva, penis, rectum, or mouth during sexual activity.



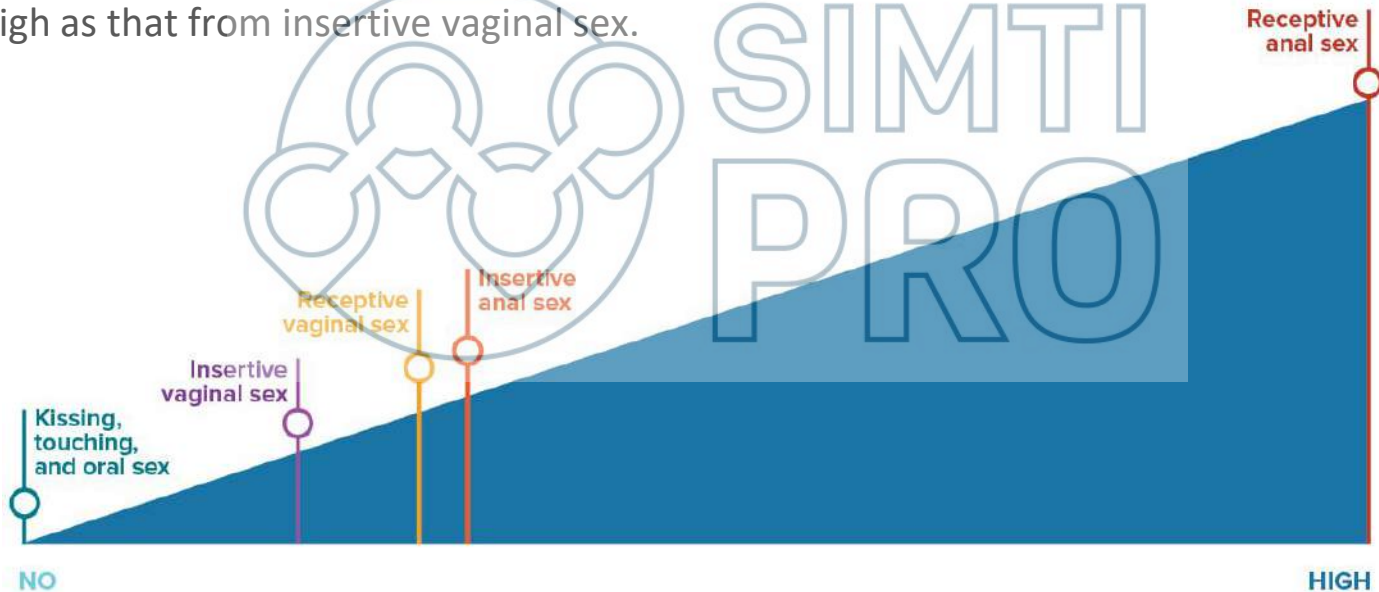
<https://stanfordhealthcare.org/medical-conditions/sexual-and-reproductive-health/hiv-aids/causes/risk-of-exposure.html>

HIV Transmission

Receptive anal sex carries a much higher risk of HIV infection than receptive vaginal sex. The risk of HIV transmission from receptive anal sex is up to 18 times higher than from receptive vaginal sex.

Receptive anal sex is riskier than insertive anal sex. The risk of HIV transmission from receptive anal sex is 3 to 23 times higher than from insertive anal sex.

Receptive vaginal sex is riskier than insertive vaginal sex. The risk from receptive vaginal sex is about twice as high as that from insertive vaginal sex.



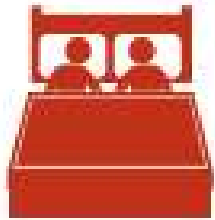
Chance of HIV transmission

<https://www.cdc.gov/hiv/basics/hiv-transmission/not-transmitted.html>

<https://stanfordhealthcare.org/medical-conditions/sexual-and-reproductive-health/hiv-aids/causes/risk-of-exposure.html>

HIV Transmission

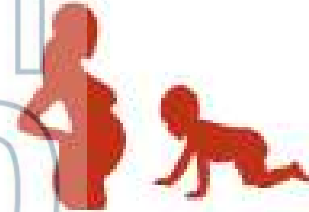
HIV CAN BE TRANSMITTED BY



Sexual Contact



Sharing Needles to Inject Drugs



Mother to Baby During Pregnancy, Birth, or Breastfeeding

<https://stanfordhealthcare.org/medical-conditions/sexual-and-reproductive-health/hiv-aids/causes/risk-of-exposure.html>

HIV Transmission



Sharing Needles
to Inject Drugs

Blood contamination - HIV may also be spread through contact with infected blood. However, due to the screening of blood for evidence of HIV infection, the risk of acquiring HIV from blood transfusions is extremely low.

Needles - HIV is frequently spread by sharing needles, syringes, or drug use equipment with someone who is infected with the virus. Transmission from patient to healthcare worker, or vice-versa through accidental sticks with contaminated needles or other medical instruments, is rare.

<https://stanfordhealthcare.org/medical-conditions/sexual-and-reproductive-health/hiv-aids/causes/risk-of-exposure.html>

HIV Transmission



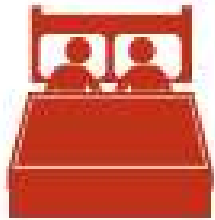
Sharing Needles
to Inject Drugs

- The risk of HIV transmission for any exposure/contact is directly related to the **amount of blood exchanged**.
- The higher someone's **viral load**, the more likely that person is to transmit HIV. Viral load is highest during the acute phase of HIV, and without HIV treatment.



HIV Transmission

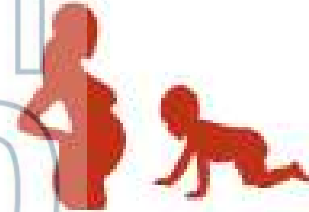
HIV CAN BE TRANSMITTED BY



Sexual Contact



Sharing Needles to Inject Drugs



Mother to Baby During Pregnancy, Birth, or Breastfeeding

<https://stanfordhealthcare.org/medical-conditions/sexual-and-reproductive-health/hiv-aids/causes/risk-of-exposure.html>

HIV Transmission



Mother to Baby During
Pregnancy, Birth, or Breastfeeding

Mother-infant - HIV also can be spread to babies born to, or breastfed by, mothers infected with the virus.

The prime determinant of transmission, is absence of maternal ART.

In the absence of intervention, the rate of transmission of HIV from a mother living with HIV to her child during pregnancy, labour, delivery or breastfeeding ranges from **15% to 45%.**

Most cases of mother-to-child transmission occur during labour.

<https://stanfordhealthcare.org/medical-conditions/sexual-and-reproductive-health/hiv-aids/causes/risk-of-exposure.html>

HIV Transmission



Mother to Baby During Pregnancy, Birth, or Breastfeeding



- There is an increased risk of transmission, either perinatally or postnatally, when women **contract HIV during pregnancy**.
- Other factors associated with an increased risk of perinatal HIV transmission include low maternal CD4+ T cell count, prolonged rupture of membranes, pre-term labour, chorioamnionitis, cigarette smoking or illicit drug use during pregnancy, and obstetric procedures such as amniocentesis and amniocentesis.

<https://hiv.guidelines.org.au/management/natural-history-of-hiv-infection/mother-to-child-transmission-of-hiv-infection>

HIV Transmission



Mother to Baby During Pregnancy, Birth, or Breastfeeding

HIV-POSITIVE AND PREGNANT?



Protect your own health and **lower your risk** of passing HIV to your baby **by taking HIV meds.**



- The prime determinant of transmission, is absence of maternal ART. Transmission of HIV from mother to baby occurs in **10% of mothers with a low HIV viral load not receiving ART** compared with **< 1% of mothers on ART.**
- Caesarean section before the onset of labour significantly reduces the risk of HIV transmission, although ART is the mainstay of HIV prevention and there is no additional benefit of caesarean sections in women receiving effective ART with an undetectable plasma HIV viral load at the time of delivery.

<https://hiv.guidelines.org.au/management/natural-history-of-hiv-infection/mother-to-child-transmission-of-hiv-infection>

HIV Transmission



Average Risk of HIV Transmission Per Exposure to Infected Source



SOURCE	PERCENTAGE	ODDS
NONSEXUAL MODES[^]		
Blood transfusion	90%	9 in 10
Needle sharing (injection drug use)	0.67%	1 in 149
Needlestick (percutaneous; through the skin)	0.30%	1 in 333
Biting, spitting, throwing body fluids (including semen or saliva), sharing sex toys	negligible	negligible
ORAL SEX[^]		
Receptive partner (example, giving a blow job)	0%–0.04%	0–1 in 2,500
Insertive partner (example, getting a blow job)	~0%	about zero
VAGINAL SEX^{**}		
Risk to female with HIV-positive male partner		
High-income countries	0.08%	1 in 1,250
Low-income countries	0.30%	1 in 333
Risk to male with HIV-positive female partner		
High-income countries	0.04%	1 in 2,500
Low-income countries	0.38%	1 in 263
ANAL SEX^{***}		
Insertive partner's risk (circumcised)	0.11%	1 in 909
Insertive partner's risk (uncircumcised)	0.62%	1 in 161
Receptive partner's risk (without ejaculation)	0.65%	1 in 154
Receptive partner's risk (with ejaculation)	1.43%	1 in 70

https://www.poz.com/pdfs/P04-14p53.risk_transmission.pdf

HIV Transmission

★ ————— Other Numbers to Know ————— ★

INCREASE HIV RISK

- ★ Acute infection, roughly the 12 weeks after contracting HIV, can increase transmission likelihood **26 times**, raising a 1.43% risk to **37%**—higher than **1 in 3**. This is because viral load skyrockets during the acute phase.
- ★ Presence of other sexually transmitted infections (STIs) can amplify risk by as much as **8 times**.
- ★ Exposure to gender inequality and intimate partner violence can raise a woman's HIV risk **1.5 times**.

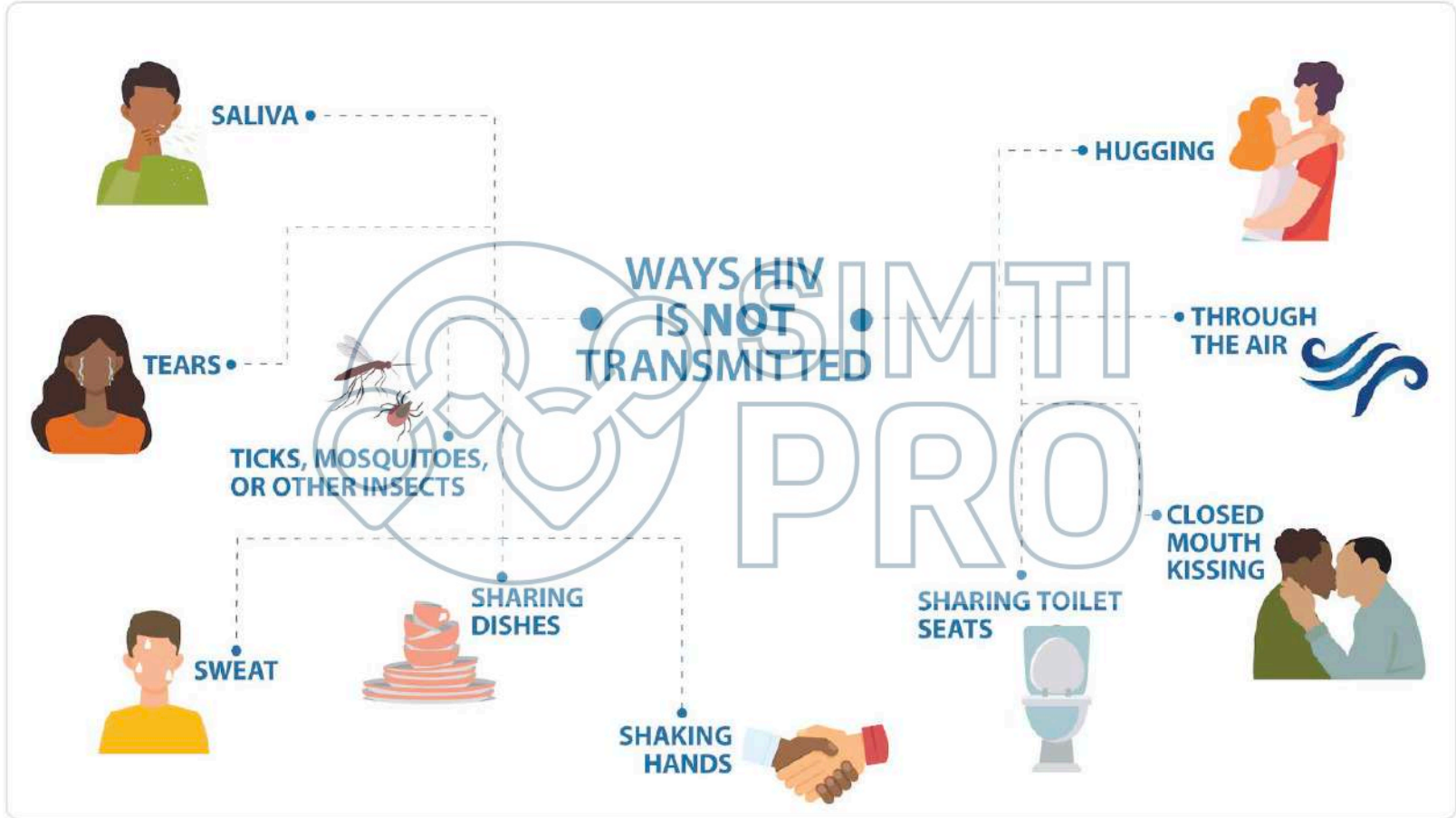
DECREASE HIV RISK

- ★ Circumcision can lower heterosexual men's risk by **60%**.
- ★ Treatment as prevention, TasP when HIV-positive people on meds maintain an undetectable viral load, can reduce transmission risk by **96%**. Some research hints that the number may approach **100%**.
- ★ Pre-exposure prophylaxis, PrEP when HIV-negative people take daily med Truvada, can decrease risk by upwards of **92%**, depending on adherence. Post-exposure prophylaxis, PEP, works similarly.
- ★ Condoms, according to the CDC, lower risk on average by **80%**.
- ★ Forms of seroadaptation, such as having condomless sex only with people of your same sero status, can also lower risk, but the outcomes vary.

[^]HIV Transmission Risk Factsheet, Centers for Disease Control and Prevention, July 2012; ^{*}Julie Fox et al., Quantifying Sexual Exposure to HIV Within an HIV-Serodiscordant Relationship: Development of an Algorithm. AIDS, 2011; ^{**}Summarized from Boily MC et al. Heterosexual Risk of HIV-1 Infection Per Sexual Act: Systematic Review and Meta-analysis of Observational Studies. Lancet Infect Dis 9: 118-29, 2009; ^{***}Jin F et al. Per-Contact Probability of HIV Transmission in Homosexual Men in Sydney in the Era of HAART. AIDS, published online ahead of print, 2010.

https://www.poz.com/pdfs/P04-14p53.risk_transmission.pdf

HIV Transmission



<https://www.cdc.gov/hiv/basics/hiv-transmission/not-transmitted.html>



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HIV Testing

Who Should We Screen?

- **Everyone ages 13 to 64 should get tested for HIV at least once as part of routine health care.**

Who should be screened at least annually?

- People who inject drugs and their sex partners.
- People who exchange sex for money or drugs.
- Sex partners of people with HIV.
- Sexually active gay, bisexual, and other men who have sex with men (more frequent testing may be beneficial [e.g., every 3–6 months]).
- Heterosexuals who themselves or whose sex partners have had ≥ 1 sex partner since their most recent HIV test.
- People receiving treatment for hepatitis, tuberculosis, or a sexually transmitted infection.

HIV Testing

- There are **three types of HIV tests**;
- Each type of HIV test has its own testing window;
- HIV self-tests are also available for patients who want to test at home or in a private location.

Antibody

- IgG and/or IgM
- Lab-based
 - Plasma/serum
 - Dried blood spot
 - Oral fluid
- Point of care (POC)
 - Rapid
 - Plasma, serum, whole blood
 - Oral fluid

Antigen/Antibody (4th generation)

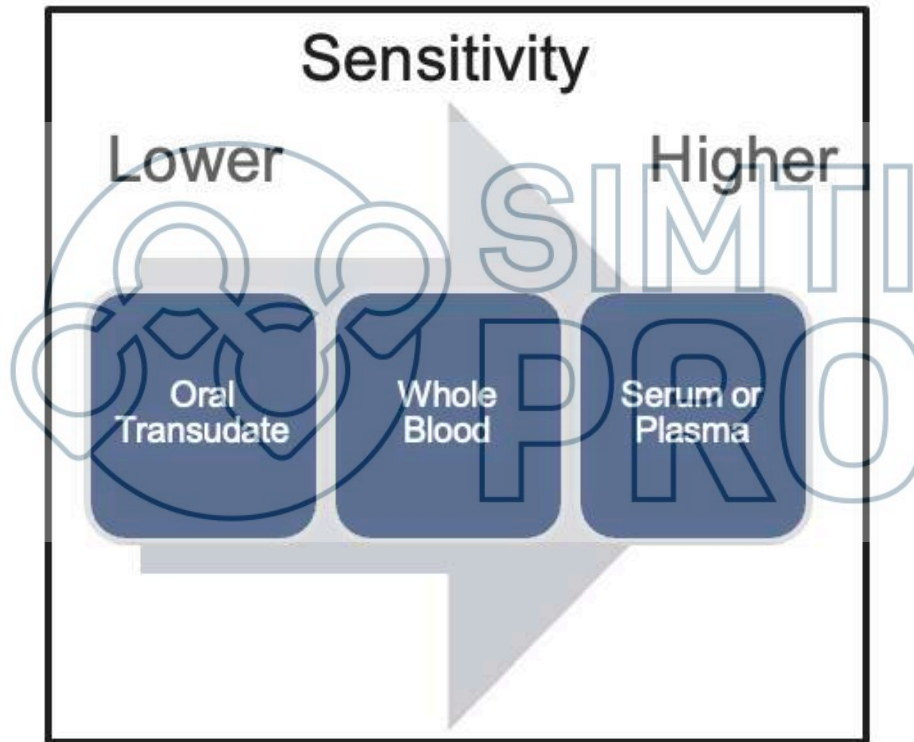
- Lab-based
 - Plasma/serum
- Point of care (POC)
 - Rapid
 - Plasma, serum, whole blood

Nucleic Acid (NAT)





- HIV RNA PCR
 - Qualitative
 - Quantitative (viral load)
- Branched DNA (bDNA)
 - Lab-based
 - Plasma/serum

Branson BM, et al. Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations. CDC.gov. June 27, 2014. Available at <http://stacks.cdc.gov/view/cdc/23446>.

HIV Testing

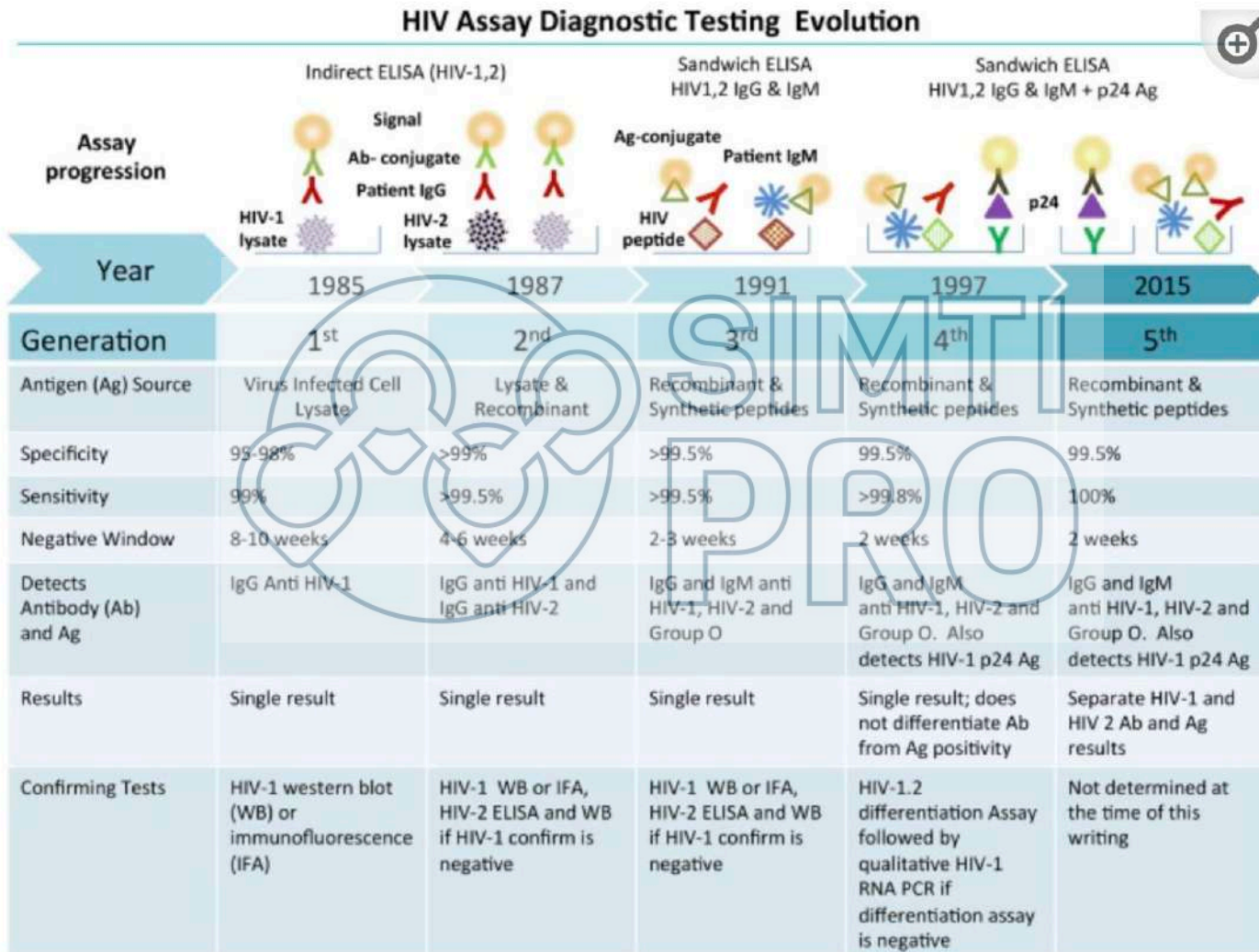


HIV Testing

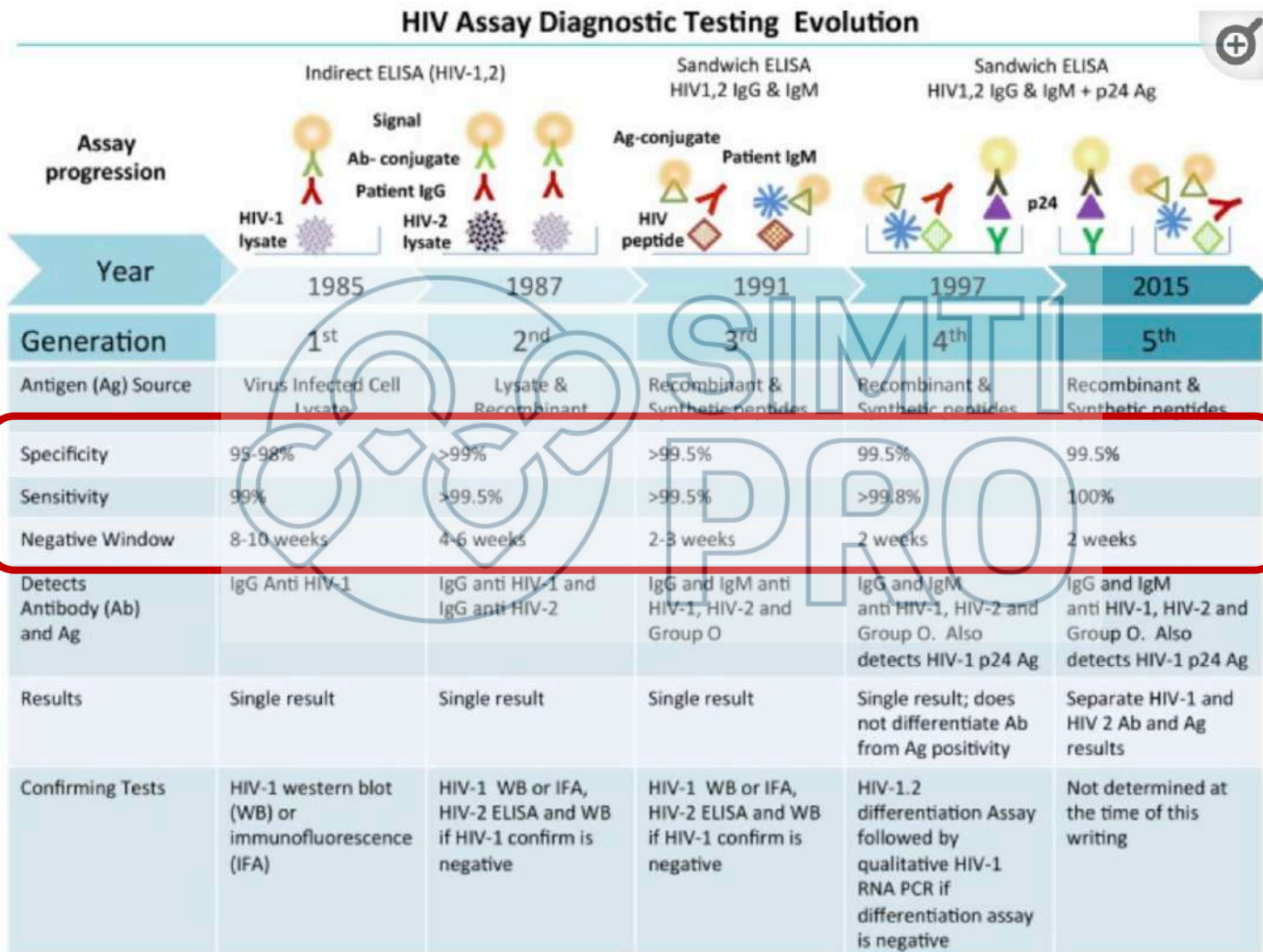
IgG-Sensitive		IgM-Sensitive	Antigen-Antibody
First Generation	Second Generation	Third Generation	Fourth Generation
			
Uses crude viral lysate Detects IgG antibodies	Uses recombinant HIV antigens or peptides Detects IgG antibodies	Uses "Sandwich" EIA Detects IgM and IgG antibodies	Detects HIV IgG and IgM antibodies and p24 antigen

Branson BM, et al. Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations. CDC.gov. June 27, 2014. Available at <http://stacks.cdc.gov/view/cdc/23446>.

HIV Testing

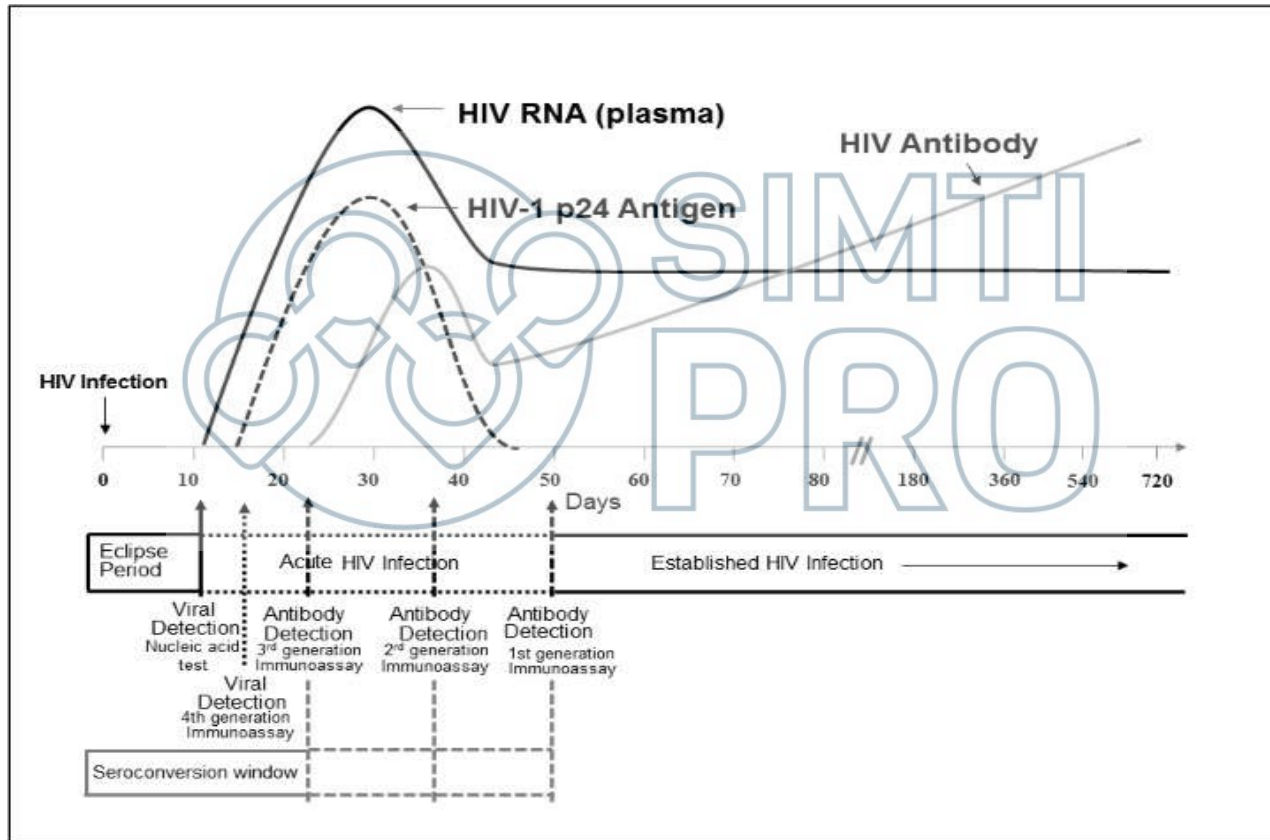


HIV Testing



HIV Testing

Sequence of Appearance of Lab Markers of HIV-1 Infection



Branson BM, et al. Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations. CDC.gov. June 27, 2014. Available at <http://stacks.cdc.gov/view/cdc/23446>.

HIV Testing

WHAT IS THE WINDOW PERIOD FOR THE HIV TEST I TOOK?

Nucleic Acid Test (NAT)*
window period

10-33 days



Antigen/Antibody Lab Test*
window period

18-45 days

Rapid Antigen/Antibody Test†
window period

18-90 days



Antibody Test‡
window period

23-90 days



* Performed by a lab on blood from a vein.

† Done with blood from a finger stick.

‡ Most rapid tests and self-tests are antibody tests.

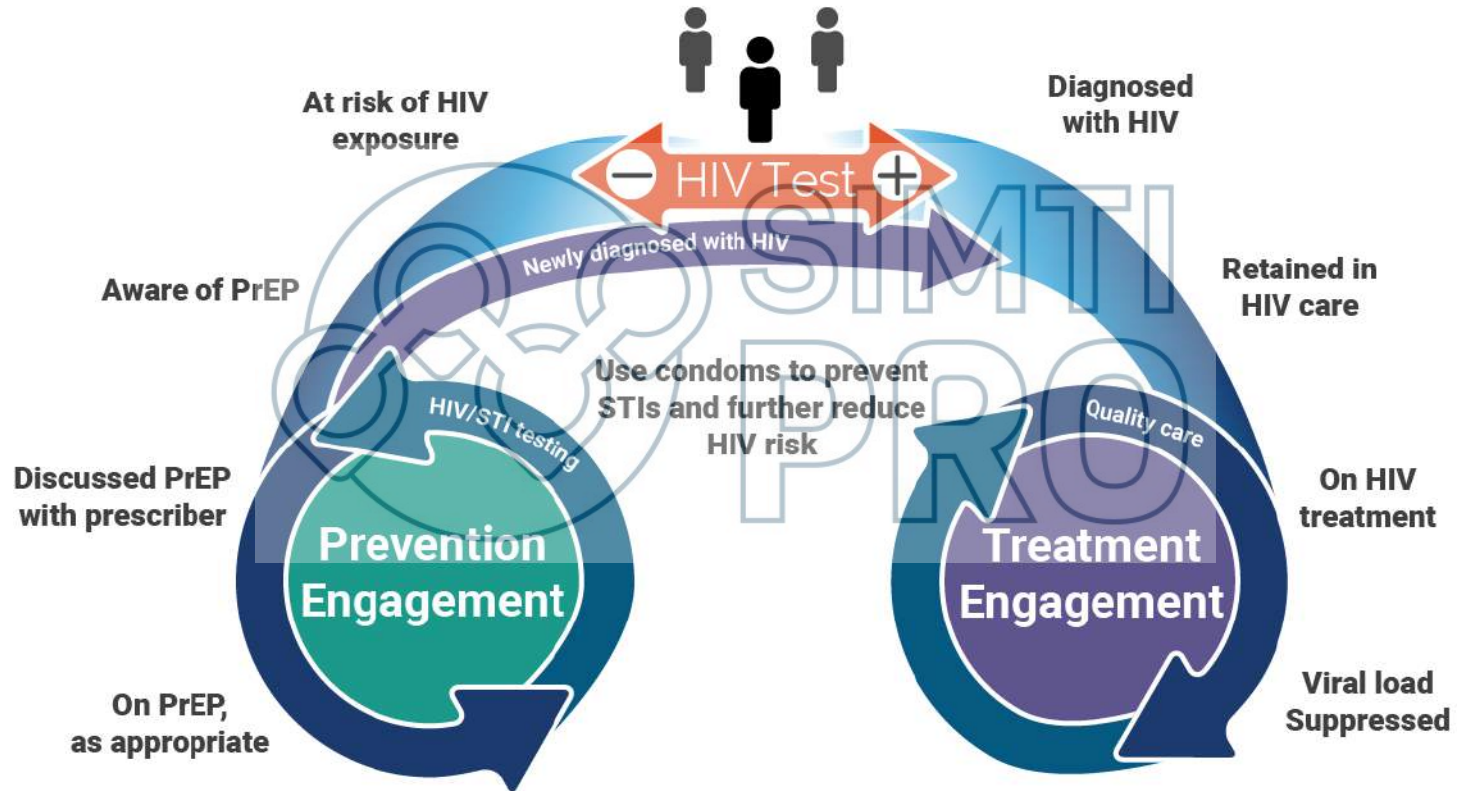
HIV Basics
www.cdc.gov/hiv/basics

For more information, visit www.cdc.gov/hiv/basics/testing.html



HIV Testing

HIV Status-Neutral Service Delivery Model



<https://blog.catie.ca/2019/11/04/an-hiv-status-neutral-paradigm-shift/>

The benefit of knowing your HIV status

For HIV-negative

- Safer sex and injection practices
- Access to pre-exposure prophylaxis (**PrEP**) and post-exposure prophylaxis (**PEP**)

For HIV-positive

- Safer sex and injection practices
- Antiretroviral use for individual patient health
- Treatment as prevention (i.e., **U=U**)
- Prophylaxis to prevent opportunistic infections, if indicated

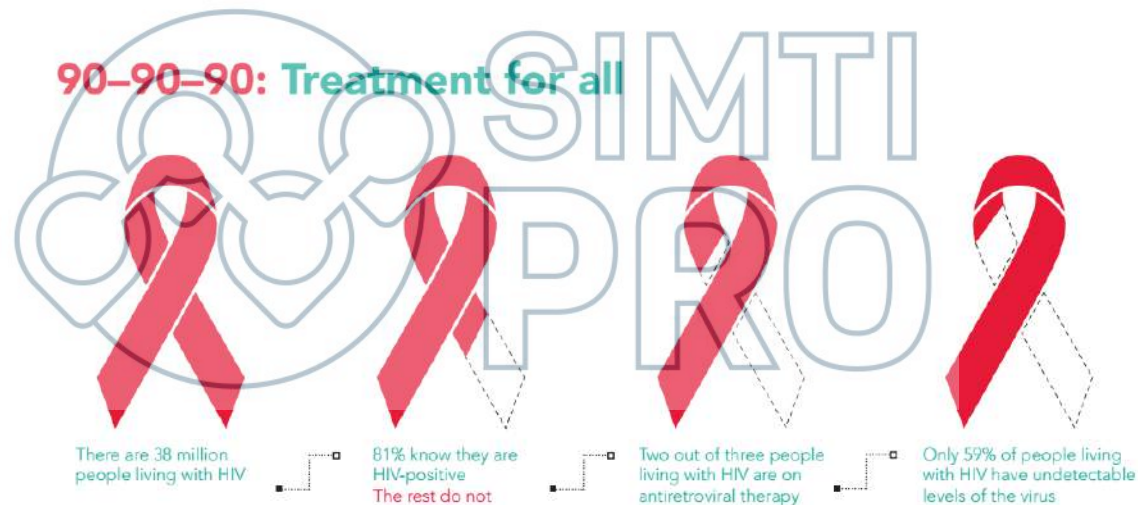




HIV Targets and commitments

HIV targets and commitments

Nel dicembre 2014 il Programma delle Nazioni Unite sull'HIV/AIDS (UNAIDS) lanciò l'iniziativa "90-90-90" sulla base della quale entro il 2020 nel mondo il 90% di tutti i casi di HIV avrebbe dovuto essere diagnosticato, il 90% delle persone sieropositive avrebbe dovuto avere accesso alle terapie antiretrovirali e il 90% delle persone trattate avrebbe dovuto poter ottenere la soppressione della carica virale, con l'obiettivo di porre fine all'AIDS come minaccia di sanità pubblica entro il 2030



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

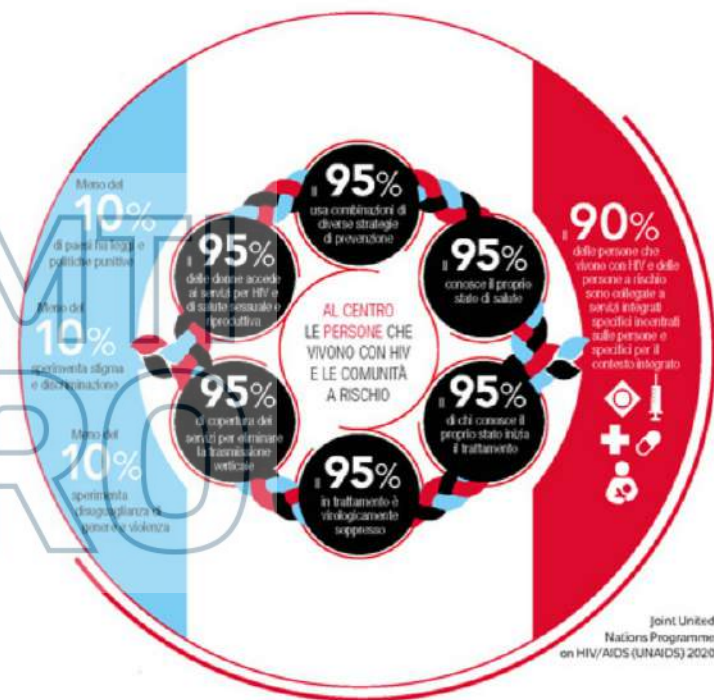
Source: UNAIDS 2020 estimates.



HIV targets and commitments

È stata UNAIDS stessa però a segnalare alla fine del 2020 il **mancato raggiungimento degli obiettivi proposti**, determinato probabilmente da mancanza di investimenti, insufficienza di azioni governative per contenere l'HIV, scarsa informazione oltre che dalla diffusione della pandemia da COVID-19, e dall'attenzione posta su quest'ultima anche nei periodi molto successivi al picco pandemico.

Nel giugno 2021 UNAIDS ha stabilito dei nuovi ambiziosi obiettivi **95-95-95**, per la prevenzione primaria, la diagnosi, l'accesso alle terapie e il raggiungimento della soppressione virale.



UNAIDS

HIV targets and commitments

Obiettivi UNAIDS 95-95-95

- Render consapevole del proprio stato sierologico almeno il 95% delle persone con HIV,
- Assicurare al 95% di chi ha una diagnosi positiva l'accesso alle terapie,
- Assicurare almeno al 95% di chi beneficia delle terapie il raggiungimento della soppressione virologica,

	2025 target	Numerator	Denominator
The first 95 (indicator 1)	At least 95% of people living with HIV know their HIV status	Number of people living with HIV who know their HIV status	Number of people living with HIV
The second 95 (indicator 2)	At least 95% of people who know their HIV status are on treatment	Number of people living with HIV who are on treatment	Number of people living with HIV who know their HIV status
The third 95 (indicator 3)	At least 95% of people on treatment have a suppressed viral load	Number of people living with HIV who have a suppressed viral load	Number of people living with HIV who are on treatment

Note: the denominator of the second 95 is the numerator of the first 95 (green boxes), and the denominator of the third 95 is the numerator of the second 95 (blue boxes).

HIV targets and commitments

Obiettivi UNAIDS 95-95-95

- Il 95% di tutte le persone che vivono con l'HIV è consapevole del proprio stato,
- Il 90% delle persone che vivono con l'HIV ricevono il trattamento,
- L'86% di tutte le persone che vivono con l'HIV ha carica virale azzerata.

Nel 2023 questo target non era lontanissimo ma nemmeno abbastanza vicino da essere in linea entro il 2025. Globalmente siamo ad un: "86-89-93"

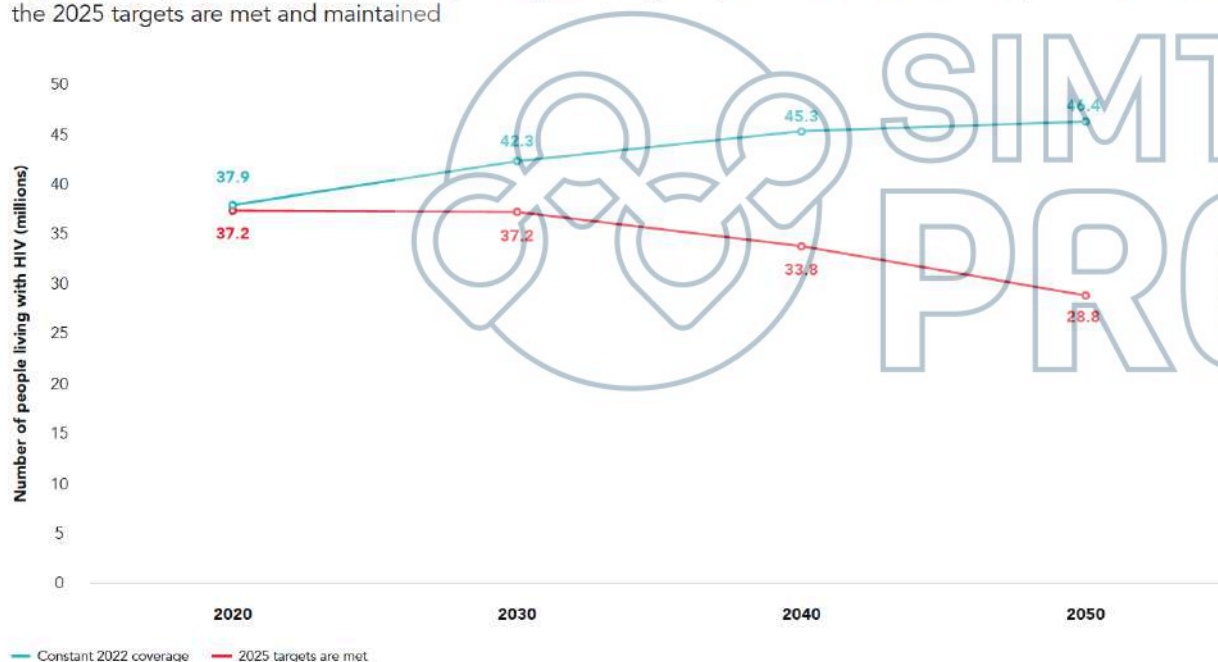
	2025 target	Numerator	Denominator
HIV cascade indicator 1 (same as first 95)	At least 95% of people living with HIV know their HIV status	Number of people living with HIV who know their HIV status	Number of people living with HIV
HIV cascade indicator 2	At least 90% of people living with HIV are on treatment	Number of people living with HIV who are on treatment	Number of people living with HIV
HIV cascade indicator 3	At least 86% of people living with HIV have a suppressed viral load	Number of people living with HIV who have a suppressed viral load	Number of people living with HIV

Note: in a cascade, the denominator (number of people living with HIV) remains the same for each indicator.

HIV targets and commitments

- Le proiezioni mostrano che se gli obiettivi globali del 2025 saranno raggiunti, nel 2050 circa 29 milioni di persone vivranno con l'HIV a livello globale.
- D'altra parte, se i programmi per l'HIV rimarranno sulla rotta attuale, circa 46 milioni di persone vivranno con l'HIV nel 2050.

Figure 9.1 Projections of numbers of people living with HIV globally in 2030 and 2050 in status quo scenario and if the 2025 targets are met and maintained



Source: special analysis by Avenir Health using Goals model, November 2023.

La differenza è enorme: ci saranno **17 milioni** di persone in più che vivono con l'HIV nel 2050 se i programmi non verranno potenziati per raggiungere gli obiettivi del 2025.

The urgency of now: AIDS at a crossroads. Geneva: Joint United Nations Programme on HIV/AIDS; 2024. Licence: CC BY-NC-SA 3.0 IGO.

HIV targets and commitments

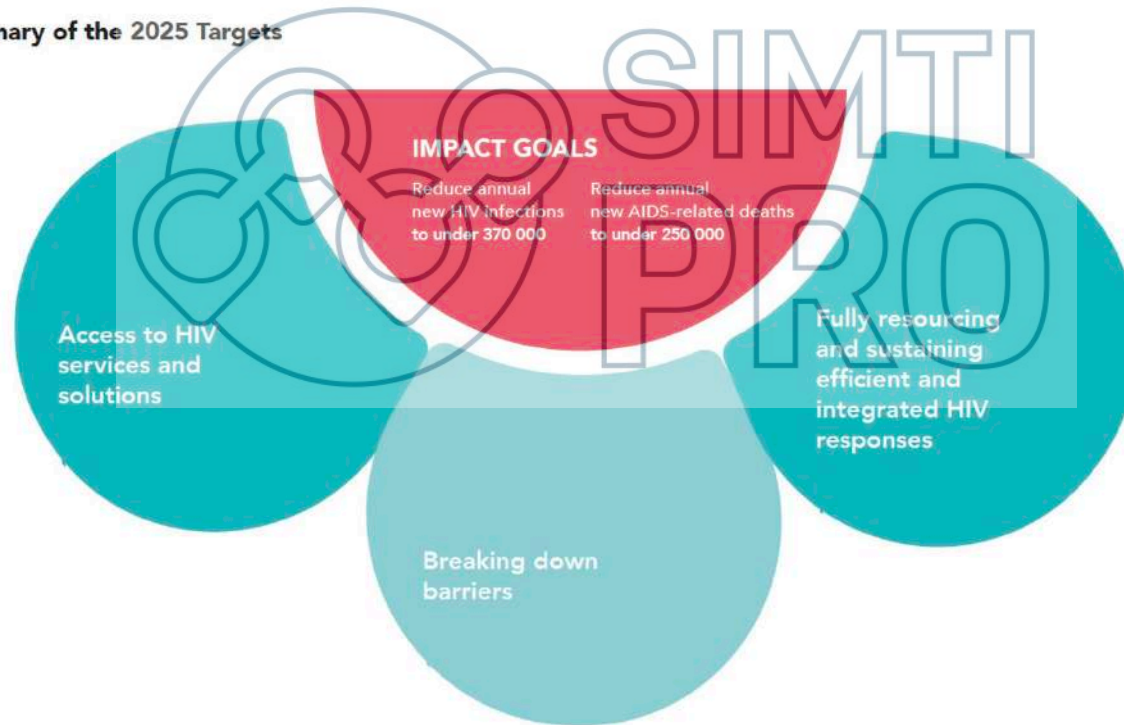
- Tra le 39,9 milioni di persone che vivono con HIV nel mondo, **tre su quattro sono attualmente in cura**; si tratta di un dato straordinario in termini di salute pubblica se si pensa che fino al 2010 la copertura dei trattamenti era solo del 47%.
- Di contro, è davvero inaccettabile che, quasi un quarto della popolazione mondiale che vive con HIV non riceva ancora le cure.
- La conseguenza è che ogni minuto, una persona nel mondo muore per patologie correlate all'AIDS.
- Anche rispetto alle morti AIDS-correlate, i progressi sono innegabili visto che siamo passati dal milione e trecentomila del 2010 alle 630mila del 2023. Tuttavia, **siamo ben lontani dai target necessari a centrare l'obiettivo 2025 che prevedeva di ridurle sotto le 250mila nel 2025 per arrivare a zero nel 2030**.



The urgency of now: AIDS at a crossroads. Geneva: Joint United Nations Programme on HIV/AIDS; 2024. Licence: CC BY-NC-SA 3.0 IGO.

HIV targets and commitments

- Sebbene siano stati compiuti progressi nel garantire l'accesso al trattamento ad oltre 30 milioni di persone, sono necessari molti più sforzi e maggiore urgenza per accelerare la **prevenzione e abbattere le barriere che impediscono alle persone, soprattutto a quelle emarginate, di accedere ai servizi di prevenzione e trattamento dell'HIV**. *Summary of the 2025 Targets*

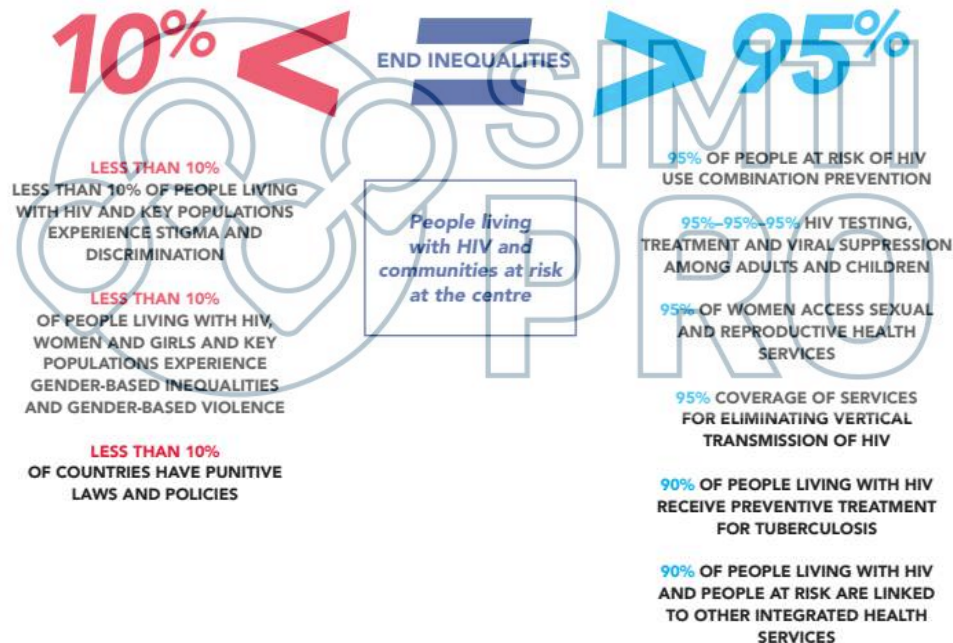


The urgency of now: AIDS at a crossroads. Geneva: Joint United Nations Programme on HIV/AIDS; 2024. Licence: CC BY-NC-SA 3.0 IGO.

HIV targets and commitments

AMBITIOUS TARGETS AND COMMITMENTS FOR 2025

2025 HIV targets



Grazie per l'attenzione



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