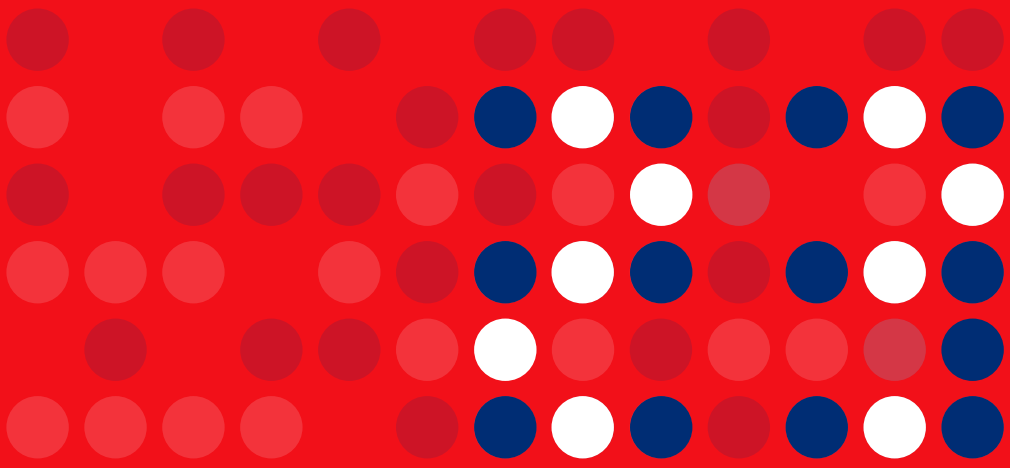
Human Immunodeficiency Virus (HIV)
Infection in the Netherlands

HIV Monitoring

HIV Monitoring Report 2023

Chapter 9: Curaçao



9. Curaçao

Diederik van de Wetering, Esther Rooijakkers, Gonneke Hermanides, Marije Hofstra, Ashley Duits, Ard van Sighem

Introduction

Since 2005, stichting hiv monitoring (SHM) has assisted in collecting demographic and clinical data on individuals with HIV receiving care at the now-closed St. Elisabeth Hospital or at the Curaçao Medical Center in Willemstad, Curaçao. An extensive database has been established as a result of this registration and monitoring. This is unique for the region and gives a clear picture of the population with HIV, the effectiveness of HIV care, and the challenges that exist in this relatively small Caribbean setting. This special report presents a concise overview of the current situation for people with HIV in Curaçao.

In total, 1,418 individuals with HIV recorded by SHM have been registered in Curaçao. Of these people, the majority were diagnosed with HIV-1 (n=1,403, or 99%), while one individual was diagnosed with HIV-2, and three had antibodies against both HIV-1 and HIV-2 (*Figure 9.1*). For 11 individuals, serological results on HIV type were not available in the SHM database.

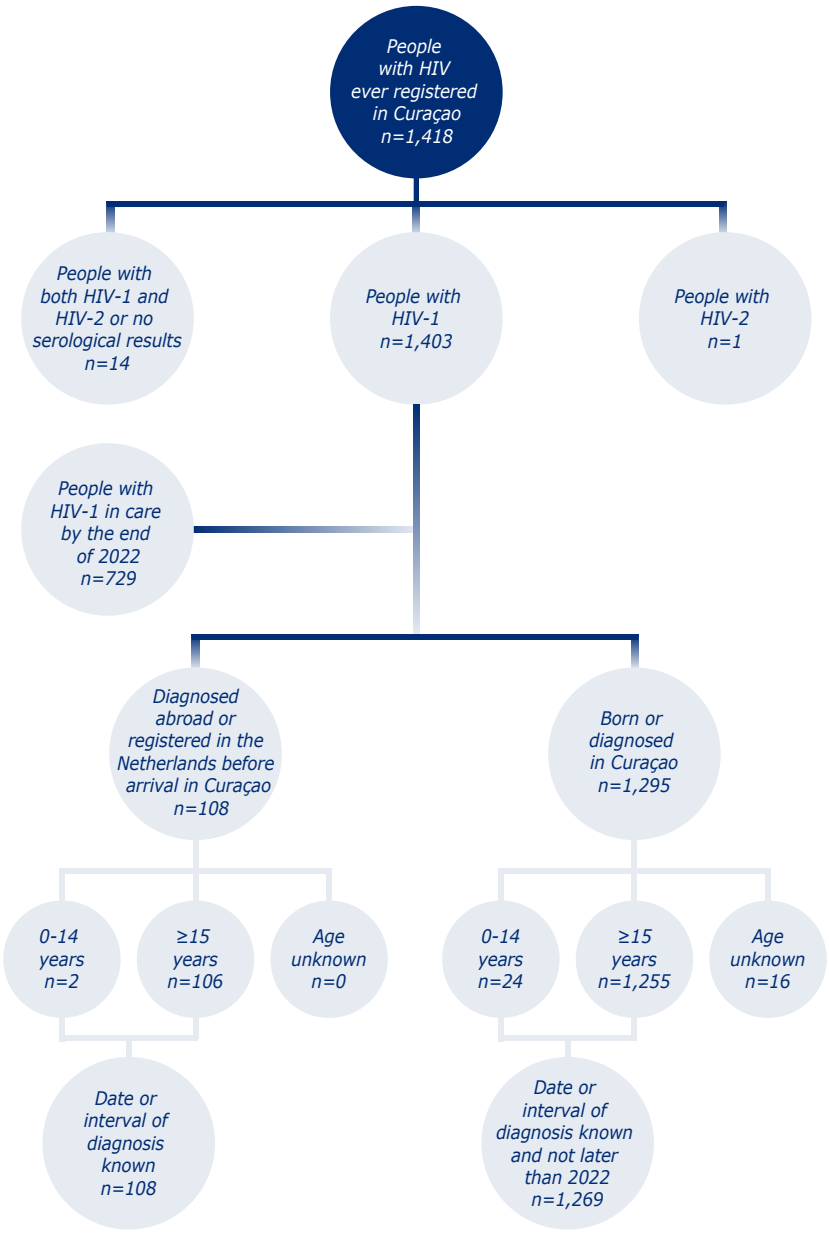
The population with HIV-1 in Curaçao

Of the 1,403 individuals in Curaçao with HIV-1, 108 (8%) had a documented HIV diagnosis prior to arrival in Curaçao (*Figure 9.1*). The remaining 1,295 individuals were newly diagnosed while living in Curaçao, or their date of arrival in Curaçao has not yet been recorded in the SHM database.

Individuals diagnosed before arriving in Curaçao

The 108 individuals with a documented HIV-1 diagnosis prior to arrival in Curaçao included 97 (90%) people who were registered with an HIV treatment centre in the Netherlands prior to moving to Curaçao (*Figure 9.1*). The majority of these 97 individuals (n=71, or 73%) originated from the former Netherlands Antilles, while 21 (22%) were born in the Netherlands and five (5%) were born elsewhere. The other 11 individuals with pre-migration diagnosis were also born abroad, including 5 in Venezuela. Of the 11 people arriving in Curaçao in 2020-2022 with a documented HIV-1 diagnosis prior to arrival, 8 had a suppressed viral load below 200 copies/ml (*Figure 9.2*).

Figure 9.1: Overview of the population with HIV registered in Curaçao.



Individuals newly diagnosed in Curaçao

Altogether, 1,295 individuals were newly diagnosed while living in Curaçao, or information on where they lived at the time of diagnosis was not yet available (*Figure 9.1*). Of these 1,295 individuals, 970 (75%) were born in the former Netherlands Antilles, 114 (9%) originated from Haiti, 93 (7%) from the Dominican Republic, 28 (2%) from Jamaica, 20 (2%) from Venezuela, and 70 (5%) from other countries.

For 26 (2%) of the 1,295 individuals diagnosed while living in Curaçao, the date or interval of diagnosis was not recorded in the SHM database, or they were diagnosed in 2023. The remaining 1,269 individuals comprised (*Table 9.1*):

- 249 (20%) men who have sex with men (MSM);
- 535 (42%) other men,
  - 330 (62%) of whom reported sex with women as the most likely mode of transmission
  - 205 (38%) reported other or unknown modes of transmission;
- 456 (36%) women,
  - 434 (95%) of whom reported sex with men as the most likely mode of transmission
  - 22 (5%) reported other or unknown modes of transmission;
- 5 transgender men and women;
- 24 (2%) children diagnosed before the age of 15 years.

Between 2000 and 2018, the annual number of newly-diagnosed infections hovered around 50, before decreasing to below 30 in most recent calendar years (*Table 9.1*; *Figure 9.2*).

Among the 97 individuals diagnosed in 2020 or later, the median age at diagnosis was 38 years (interquartile range [IQR] 28-50), with no differences between men and women. Of these 97 individuals:

- 28 (29%) were younger than 30 years of age at the time of diagnosis;
- 23 (24%) were aged between 30 and 39 years;
- 22 (23%) were aged between 40 and 49 years; and
- 24 (25%) were aged 50 years and over.

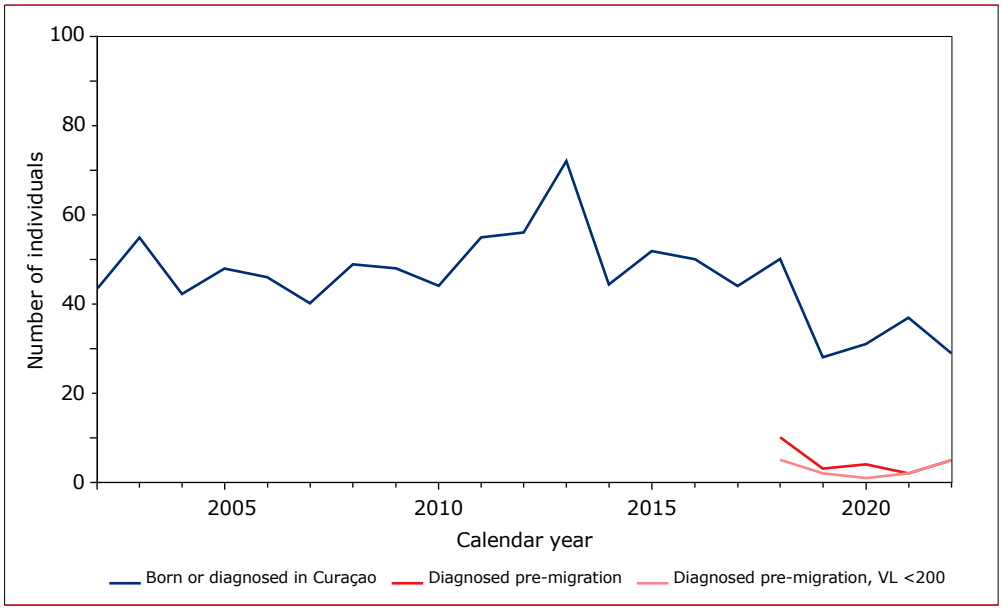
Table 9.1: Annual number of HIV-1 diagnoses in Curaçao among men who have sex with men, other men, women, and trans men and women diagnosed at 15 years of age and over, and children under 15 years.

Year of diagnosis	MSM	Other men	Women	Trans men and women	<15 years of age	Total
≤2001	41	136	109	1	19	306
2002	7	19	17	0	0	43
2003	8	28	19	0	0	55
2004	3	23	16	0	0	42
2005	12	19	17	0	0	48
2006	6	23	17	0	0	46
2007	12	18	10	0	0	40
2008	10	17	20	1	1	49
2009	9	17	21	0	1	48
2010	4	19	21	0	0	44
2011	12	19	24	0	0	55
2012	13	17	26	0	0	56
2013	18	30	22	1	1	72
2014	16	14	14	0	0	44
2015	16	22	12	1	1	52
2016	12	23	15	0	0	50
2017	14	17	13	0	0	44
2018	17	13	19	1	0	50
2019	7	13	8	0	0	28
2020	7	12	12	0	0	31
2021	5	21	10	0	1	37
2022	0	15	14	0	0	29
Total	**249**	**535**	**456**	**5**	**24**	**1,269**

Note: *Data collection for 2022 may not have been finalised at the time of writing.*

Legend: *MSM = men who have sex with men.*

Figure 9.2: Annual number of individuals newly diagnosed with HIV-1 in Curaçao (by year of diagnosis) or with documented diagnosis abroad before moving to Curaçao (by year of arrival). VL <200: individuals with documented diagnosis abroad before moving to Curaçao who already had a suppressed viral load below 200 copies/ml by the time they entered HIV care in Curaçao. NB: information on diagnosis abroad and date of arrival in Curaçao has been recorded for all newly registered individuals since early 2018, but is not yet available for everyone.



People in clinical care

In total, 729 (52%) of the 1,403 registered individuals with HIV-1 were known to be in clinical care in Curaçao by the end of 2022. People were considered to be in clinical care if they had visited their treating physician in 2022, or had a CD4 cell count or HIV RNA measurement during that year, and had not moved abroad. Of the 674 individuals who, according to this definition, were not in care by the end of 2022:

- 212 (32%) were known to have died;
- 169 (25%) had moved abroad; and
- 281 (42%) were lost to care

The remaining 12 individuals only entered HIV care in 2023. Of the 281 people lost to care, 56 (20%) had their last visit within a year of entering care, while another 31 (11%) had no follow-up visit after entering care. Of those lost to care:

- 167 (59%) originated from the former Netherlands Antilles;
- 49 (17%) were from Haiti;
- 29 (10%) were from the Dominican Republic; and
- 36 (13%) were from other countries.

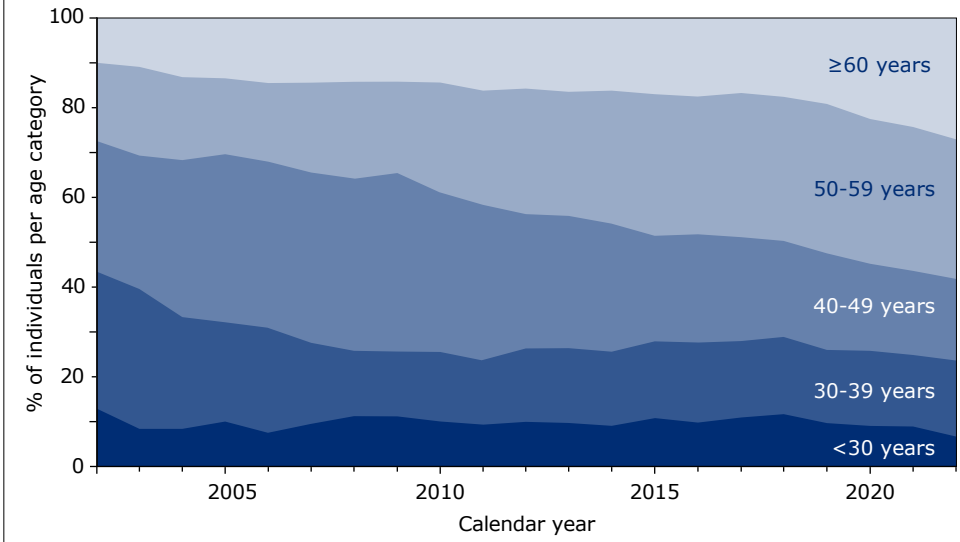
The 729 people in clinical care in 2022 included 8 individuals who did not have a clinical visit, CD4 cell count or HIV RNA measurement in 2021, but had previously received care for their HIV infection. Five of these individuals had not been in care for more than three years.

Of the 695 people who were still in care by the end of 2019, 39 (6%) did not have a clinical visit or HIV RNA or CD4 measurement in 2020. Of these 39 people, 3 had died and 8 were back in care in 2022 (including one individual who had moved to the Netherlands), while the remaining 28 individuals were still lost to care.

Ageing population

The median age of the population in care by the end of 2022 was 53 years (IQR 41-61), a figure which has been increasing since 2002 (*Figure 9.3*). This increase is mainly a result of the improved life expectancy of individuals with HIV following the introduction of combination antiretroviral therapy (ART). As a result, more than half of all people currently in care (58%) are aged 50 years and over, including 57% of men and 61% of women. More than a quarter of those in care (27%) are 60 years and over.

Figure 9.3: Increasing age of the population with HIV-1 in clinical care in Curaçao over calendar time. In 2002, 13% of the people in care were younger than 30 years of age, whereas 28% were 50 years and over. In 2022, these proportions were 6% and 58%, respectively, while 27% of people in care were 60 years of age and over. The proportion of people in clinical care as of 31 December of each calendar year is shown according to those who were <30 years of age, 30-39 years, 40-49 years, 50-59 years, and 60 years and over.



Duration of infection

People in care by the end of 2022 had been diagnosed with HIV a median of 11.4 years (IQR 6.1-18.1) previously. Therefore, a large group (56%) has lived with HIV for more than 10 years; 20% for more than 20 years (*Table 9.2*). The median time since diagnosis was 11.6 years for MSM, 10.5 years for other men, and 12.0 years for women.

Table 9.2: Characteristics of the 729 individuals with an HIV-1 infection in clinical care in Curaçao by the end of 2022.

	MSM (n=155, 21%)		Other men (n=293, 40%)		Women (n=279, 38%)		Total* (n=729)	
	n	%	n	%	n	%	n	%
Transmission								
Sex with men	113	73	–	–	263	94	378	52
Sex with women	0	0	177	60	0	0	177	24
Sex, partner unspecified	41	26	6	2	0	0	47	6
Other/unknown	1	1	110	38	16	6	127	17
Current age (years)								
0–15	0	0	2	1	2	1	4	1
15–24	4	3	2	1	7	3	13	2
25–29	10	6	11	4	9	3	30	4
30–39	31	20	50	17	41	15	124	17
40–49	38	25	45	15	50	18	133	18
50–59	44	28	91	31	91	33	226	31
60–69	18	12	64	22	58	21	140	19
≥70	10	6	28	10	21	8	59	8
Country of origin								
Former Netherlands Antilles	133	86	239	82	187	67	560	77
The Dominican Republic	2	1	8	3	40	14	50	7
Haiti	0	0	24	8	26	9	50	7
Venezuela	7	5	7	2	2	1	17	2
Jamaica	0	0	4	1	10	4	14	2
The Netherlands	7	5	3	1	0	0	10	1
Other	6	4	8	3	14	5	28	4
Years aware of HIV infection								
<1	0	0	13	4	13	5	26	4
1–2	11	7	34	12	20	7	65	9
3–4	16	10	21	7	22	8	60	8
5–9	39	25	72	25	56	20	168	23
10–19	56	36	99	34	108	39	263	36
≥20	33	21	53	18	59	21	145	20
Unknown	0	0	1	0	1	0	2	0

** Includes two trans individuals*

***Legend:** MSM = men who have sex men*

Late presentation

Among the 1,269 people diagnosed with HIV-1 while living in Curaçao, a large proportion of those who have entered care since 2002 were late presenters. This refers to individuals who entered care with a CD4 cell count below 350 cells/mm^3, or with an AIDS-defining event, regardless of CD4 cell count, and who had no HIV-negative test in the 12 months prior to entry into care[1]. The proportion of late presenters was 56% among individuals entering care in 2002-2019, and remained at a high level of 61% among those entering care in 2020 or later (*Figures 9.4A* and *9.4B*). There were no significant differences in the proportion of individuals with late presentation in 2020 or later between MSM (57%), other men (67%), and women (55%).

Advanced HIV infection (i.e. with a CD4 cell count below 200 cells/mm^3 or AIDS) was found in 37% in 2002-2019 and in 34% in 2020 or later (*Figures 9.4C* and *9.4D*). In total, 8 (7%) of the individuals who entered care since 2020 presented with an AIDS-defining disease.

Figure 9.4: *Number and proportion of people classified as presenting with (A, B) late-stage, or (C, D) advanced-stage HIV infection at the time of entry into care. From 2020 onwards, 57 (61%) individuals presented with late HIV disease while 32 (34%) were advanced presenters. Late-stage HIV infection: CD4 cell counts below 350 cells/mm³ or having AIDS, regardless of CD4 cell count, and no HIV-negative test in the 12 months prior to entry into care. Advanced-stage HIV infection: CD4 cell counts below 200 cells/mm³ or having AIDS, and no HIV-negative test in the 12 months prior to entry into care. As a pre-therapy CD4 cell count measurement close to the time of entry into care was sometimes missing, the stage of HIV infection could not be determined for all individuals. From 2020 onwards, the stage of infection was unknown for 18 (16%) individuals.*

Antiretroviral therapy (ART)

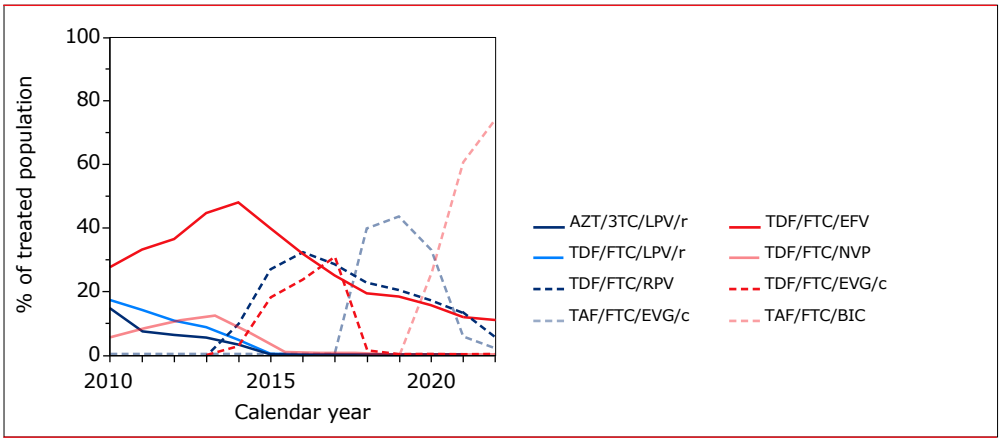
In total, 1,292 (92%) of the 1,403 registered individuals with HIV-1 had started antiretroviral therapy by the end of 2022. Of the 111 people who had not started therapy by that time, two managed to achieve HIV RNA levels below the lower limit of quantification without therapy, while 92 people were no longer in care, including 35 who had died. The other 17 individuals started therapy in 2023, or their ART may not have been recorded yet.

Over time there have been clear shifts in the ART regimens prescribed in Curaçao (*Figure 9.5*). Of the 723 people who were still in care by the end of 2022 and had started ART:

- 75% were being treated with a combination of tenofovir alafenamide, emtricitabine, and bictegravir;
- 11% with tenofovir disoproxil, emtricitabine, and efavirenz; and
- 6% with tenofovir disoproxil, emtricitabine, and rilpivirine.

The majority (98%) used a once-daily regimen, with 94% being treated with a fixed-dose, single tablet regimen.

Figure 9.5: *Percentage of individuals treated with antiretroviral therapy (ART) by specific regimens over calendar time. At the end of 2022, 75% were receiving TAF/FTC/BIC, 11% TDF/FTC/EFV, and 6% TDF/FTC/RPV.*

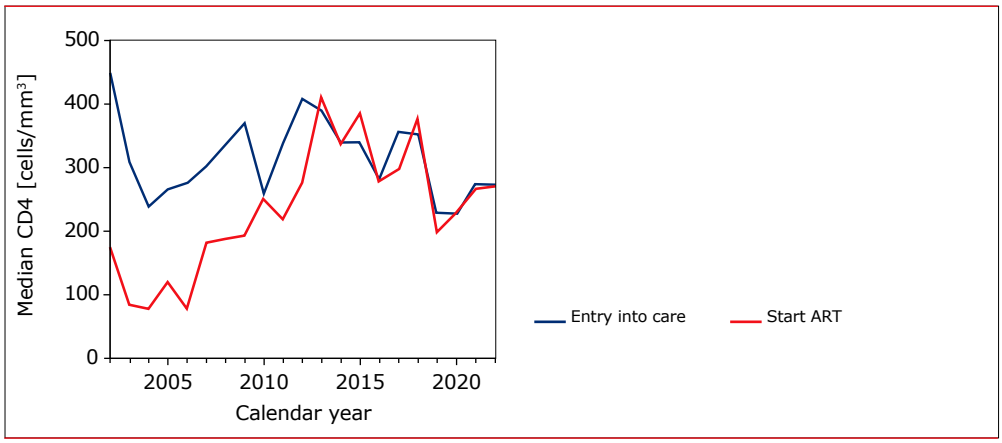


Legend: *AZT = zidovudine; 3TC = lamivudine; LPV/r = ritonavir-boosted lopinavir; TAF = tenofovir alafenamide; TDF = tenofovir disoproxil fumarate; FTC = emtricitabine; RPV = rilpivirine; EFV = efavirenz; NVP = nevirapine; EVG/c = cobicistat-boosted elvitegravir; BIC = bictegravir.*

Since the mid-2000s, there has been an increase in CD4 cell counts at the start of ART, reflecting changes in guidelines on when to initiate therapy (*Figure 9.6*). CD4 cell counts at entry into care and at the start of therapy are now almost identical, which implies that people rapidly start ART after entry into care. In 2020-2022, 91% of people received ART within six months of entering care, irrespective of their CD4 cell count. During the same period, for those with available CD4 cell count data at the start of therapy:

- 40% had a measurement below 200 CD4 cells/mm^3;
- 24% had a measurement between 200 and 349 cells/mm^3;
- 12% had a measurement between 350 and 499 cells/mm^3; and
- 24% had CD4 cell counts of 500 cells/mm^3 or higher.

Figure 9.6: *Changes over calendar time in median CD4 cell counts at entry into care and at the start of antiretroviral therapy (ART). In 2020-2022, CD4 cell counts at entry into care were 267 cells/mm^3 (interquartile range [IQR] 130-473) and were similar, 251 cells/mm^3 (IQR 114-477), at the start of therapy.*

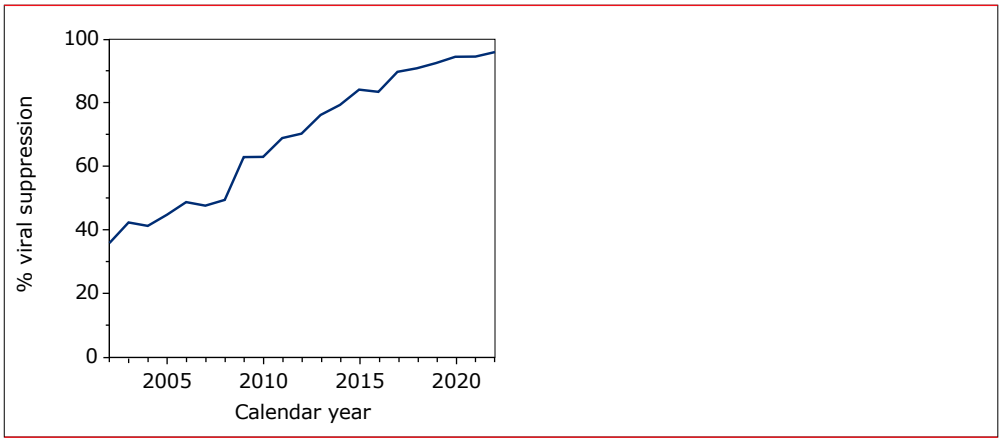


Legend: *ART = antiretroviral therapy.*

Therapy outcome

In the total population still in care by the end of 2022, the median current CD4 cell count was 528 cells/mm^3 (IQR 328-747). CD4 cell counts were highest in women (634 cells/mm^3; IQR 411-889) followed by MSM (549 cells/mm^3; IQR 366-741) and other men (439 cells/mm^3; IQR 265-664). Among individuals with a viral load measurement, the proportion with HIV RNA levels lower than 200 copies/ml increased from 36% in 2002 to 96% in 2022 (*Figure 9.7*).

Figure 9.7: Proportion of people in care with HIV RNA <200 copies/ml at their last viral load measurement in each calendar year.



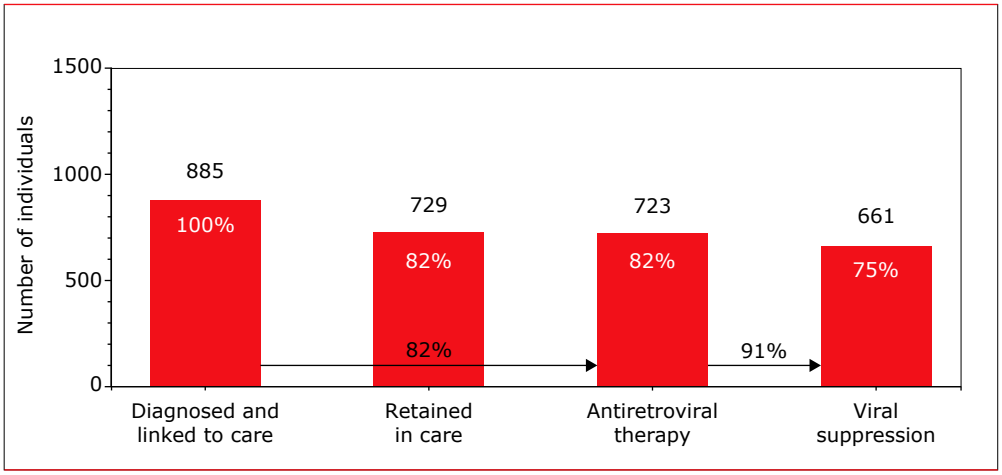
Continuum of HIV care

In total, 885 individuals had been diagnosed and linked to care, registered by SHM, had received HIV care in 2012 or later, and were not recorded in the SHM database as having died or moved abroad (*Figure 9.8*). Altogether:

- 729 people (or 82% of those diagnosed and linked to care) were still in care, having had at least one HIV RNA or CD4 cell count measurement, or a clinical visit in 2022;
- 723 (or 82% of those diagnosed and linked to care) of whom had started ART;
- 689 (95% of those who started therapy) of whom had an HIV RNA measurement available in 2022; and
- 661 (96%, or 91% of those treated) of those had a most recent HIV RNA level below 200 copies/ml.

Overall, 75% of the 885 individuals diagnosed and ever linked to care, had a suppressed viral load. In terms of the Joint United Nations Programme on HIV/AIDS' (UNAIDS) 95-95-95 target for 2025, the current estimate for the second and third "95" for Curaçao stands at 82-91: 82% of all people diagnosed receive antiretroviral therapy, and 91% of people receiving ART have a suppressed viral load[2].

Figure 9.8: Continuum of HIV care for the population with HIV-1 in Curaçao diagnosed and linked to care by the end of 2022. Percentages at the top of the bars are calculated relative to the number of people diagnosed and linked to care, while percentages at the bottom correspond to second and third of UNAIDS' 95-95-95 targets.



It is worth noting that we did not estimate the total number of people with HIV this year, including those not yet diagnosed. Estimation of the undiagnosed population is based on trends over calendar time in observed diagnoses and CD4 cell counts at the time of diagnosis. A requirement for this estimate is that all diagnoses are reported in the SHM database, and this was not yet the case. In addition, the estimated number with undiagnosed HIV would not include populations that are less likely to reach HIV care in Curaçao, such as undocumented migrants, and would therefore underestimate the true number with undiagnosed HIV.

Viral suppression

Of the 723 individuals who had started ART, 62 (9%) did not have a suppressed viral load. On closer inspection, 34 (55%) of these individuals were found to have no documented HIV RNA measurement in 2022. The remaining 28 (45%) had a viral load measurement in 2022, but with HIV RNA levels exceeding 200 copies/ml. Of these 28 individuals, five only started ART within the six month-period prior to their last measurement and may not have had sufficient follow up to achieve a documented suppressed viral load. The remaining 23 individuals with HIV RNA levels above 200 copies/ml had been on ART for longer than six months.

Lost to care

In total, 281 individuals were lost to care by the end of 2022, of whom:

- 125 (44%) were last seen for care before the end of 2012;
- 90 (32%) between 2013 and 2018;
- 28 (10%) in 2019;
- 10 (4%) in 2020; and
- 28 (10%) in 2021.

The 125 individuals who were lost to care before 2012 were excluded from the number of people diagnosed and linked to care. It is unlikely that these 125 individuals are still living in Curaçao without requiring care or ART. In total, 54 (35%) of the 156 individuals lost to care after 2012 were born outside the former Netherlands Antilles, including 19 in Haiti and 12 in the Dominican Republic. For those still in care by the end of 2022, the percentage of people born outside the former Netherlands Antilles falls to 23%. This suggests that some of those lost to care may have moved abroad; in particular, back to their country of birth. It also shows that, overall, a considerable proportion was not retained in care.

Conclusion

Over the years, the quality of care offered to individuals with HIV in Curaçao has improved considerably, as evidenced by the increasing proportion of individuals with a suppressed viral load. In addition, timely registration of HIV RNA measurements in the SHM database has also improved, enabling better monitoring of progress towards achieving UNAIDS' 95-95-95 goals for 2025. However, the proportion of people entering care with late-stage HIV infection remained high in recent years. Furthermore, the relatively high proportion of people lost to care is worrisome and may result in underreporting of death and/or outmigration. Among those lost to care is a substantial group of 28 individuals who were last seen for care in 2019 (i.e. the last year before the COVID-19 pandemic) and have not yet returned.

Recommendations

Curaçao is in a unique position in the Caribbean, in that data on individuals with HIV in care are regularly collected and monitored. However, it is important that the quality of these data is maintained and that the collected data remain representative of the population with HIV.

Early start of ART in adults appears possible, but long-term, continuous follow up should be guaranteed to optimise its effect. The continuum of care for Curaçao illustrates that while almost everyone who is still in care has started antiretroviral therapy, too many individuals are lost to care. In part, this may be explained by people who, unknown to SHM, have died or moved abroad. To address this issue, efforts have recently been stepped up to trace people who miss their scheduled appointment at the hospital. It is hoped that this will improve retention in care in the near future.

Finally, a relatively large proportion of individuals enter care late in the course of their infection. More efforts should be directed at upscaling HIV testing and ensuring that people who test positive are quickly linked to care.

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