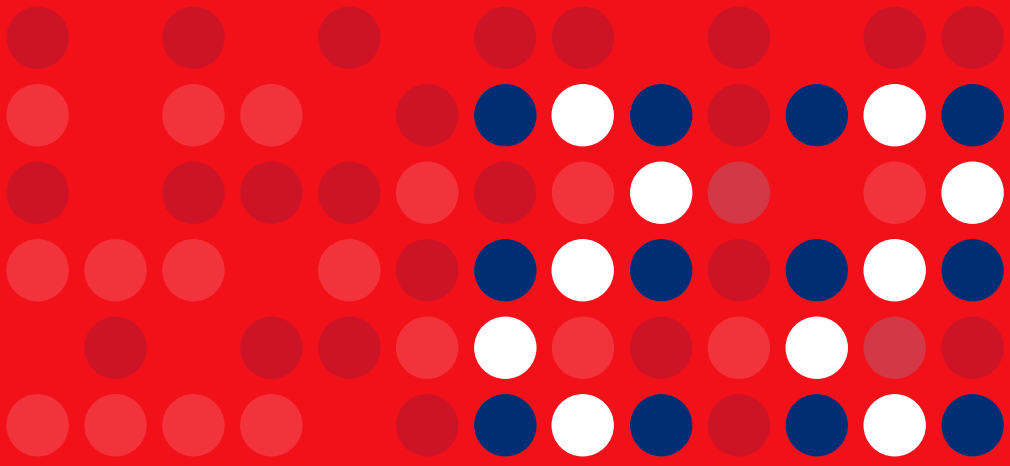
Human Immunodeficiency Virus (HIV)
Infection in the Netherlands

HIV Monitoring Report 2022

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.

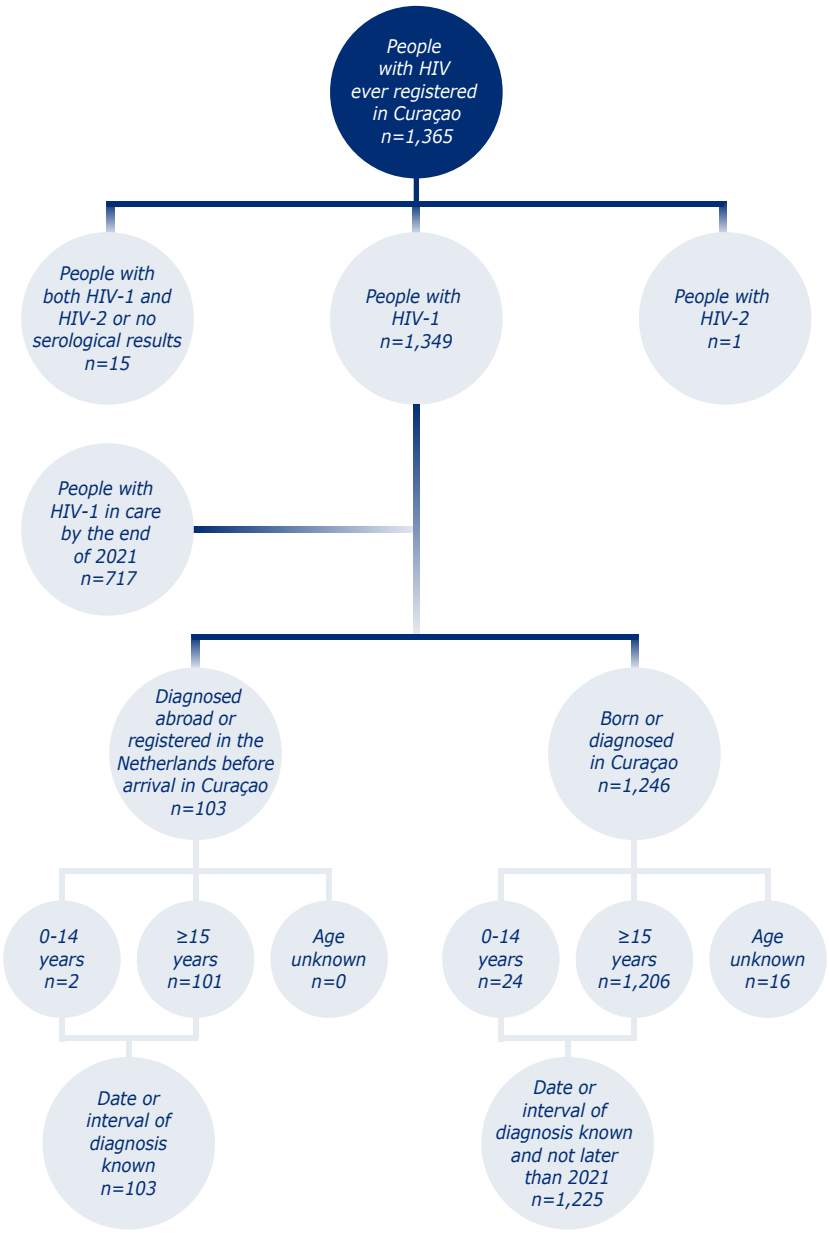
In total, 1,365 individuals with HIV recorded by SHM have been registered in Curaçao. Of these people, the majority were diagnosed with HIV-1 (n=1,349, or 99%), while one individual was diagnosed with HIV-2, and three had antibodies against both HIV-1 and HIV-2 (*Figure 9.1*). For 12 individuals, serological results on HIV type were not available in the SHM database.

The population with HIV in Curaçao

People newly diagnosed with HIV-1

Of the 1,349 individuals diagnosed with HIV-1, 96 (7%) were registered with an HIV treatment centre in the Netherlands prior to moving to Curaçao (*Figure 9.1*). The majority of these 96 individuals (n=70, or 73%) originated from the former Netherlands Antilles, while 21 (22%) were born in the Netherlands and five (5%) were born elsewhere. Another seven individuals were also born abroad, including four in Venezuela, and had a documented HIV diagnosis prior to migrating to Curaçao. The remaining 1,246 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 1,246 individuals, 931 (75%) were born in the former Netherlands Antilles, 112 (9%) originated from Haiti, and 90 (7%) from the Dominican Republic.

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



For 21 (2%) of the 1,246 individuals diagnosed while living in Curaçao, the date or interval of diagnosis was not recorded in the SHM database, or they were diagnosed in 2022. Among the remaining 1,225 individuals, 24 (2%) were diagnosed before the age of 15 years. The 1,201 individuals who were diagnosed at the age of 15 years and over comprised (*Table 9.1*):

- 249 (21%) men who reported sex with men (MSM) as the most likely mode of transmission;
- 515 (43%) other men,
  - 330 (64%) of whom reported sex with women as the most likely mode of transmission
  - 185 (36%) reported other or unknown modes of transmission;
- 437 (36%) women,
  - 417 (95%) of whom reported sex with men as the most likely mode of transmission
  - 20 (5%) reported other or unknown modes of transmission.

Between 2000 and 2018, the annual number of newly-diagnosed infections hovered around 50, before decreasing to below 30 in most recent calendar years.

Among the 83 individuals diagnosed in 2019 or later, the median age at diagnosis was 35 years (interquartile range [IQR] 27-50), with no differences between men and women. Of these 83 individuals:

- 26 (31%) were younger than 30 years of age at the time of diagnosis;
- 22 (27%) were aged between 30 and 39 years;
- 16 (19%) were aged between 40 and 49 years; and
- 19 (23%) were aged 50 years and over.

Table 9.1: Annual number of HIV-1 diagnoses in Curaçao among children under 15 years of age, and among men who acquired HIV via sex with men (MSM), other men, and women diagnosed at 15 years and over. Note: Data collection for 2021 may not have been finalised at the time of writing.

Year of diagnosis	MSM	Other men	Women	<15 years of age	Total
≤1999	31	105	77	17	230
2000	7	18	18	1	44
2001	3	13	14	1	31
2002	7	19	17	0	43
2003	8	28	19	0	55
2004	3	23	16	0	42
2005	12	19	17	0	48
2006	6	23	17	0	46
2007	12	18	10	0	40
2008	11	17	20	1	49
2009	9	17	21	1	48
2010	4	19	21	0	44
2011	12	19	24	0	55
2012	13	17	26	0	56
2013	19	31	22	1	73
2014	16	14	14	0	44
2015	16	22	12	1	51
2016	12	23	15	0	50
2017	14	17	13	0	44
2018	16	14	19	0	49
2019	7	11	7	0	25
2020	6	12	11	0	29
2021	5	16	7	1	29
Total	**249**	**515**	**437**	**24**	**1,225**

Legend: MSM = sex between men.

People in clinical care

In total, 717 (53%) of the 1,349 registered individuals with HIV-1 were known to be in clinical care in Curaçao by the end of 2021. People were considered to be in clinical care if they had visited their treating physician in 2021, or had a CD4 cell count or HIV RNA measurement during that year, and had not moved abroad. Of the 632 individuals who, according to this definition, were not in care by the end of 2021:

- 204 (32%) were known to have died;
- 159 (25%) had moved abroad; and
- 263 (42%) were lost to care

The remaining six individuals only entered HIV care in 2022. Of the 263 people lost to care, 59 (22%) had their last visit within a year of entering care, while another 31 (12%) had no follow-up visit after entering care. Of those lost to care:

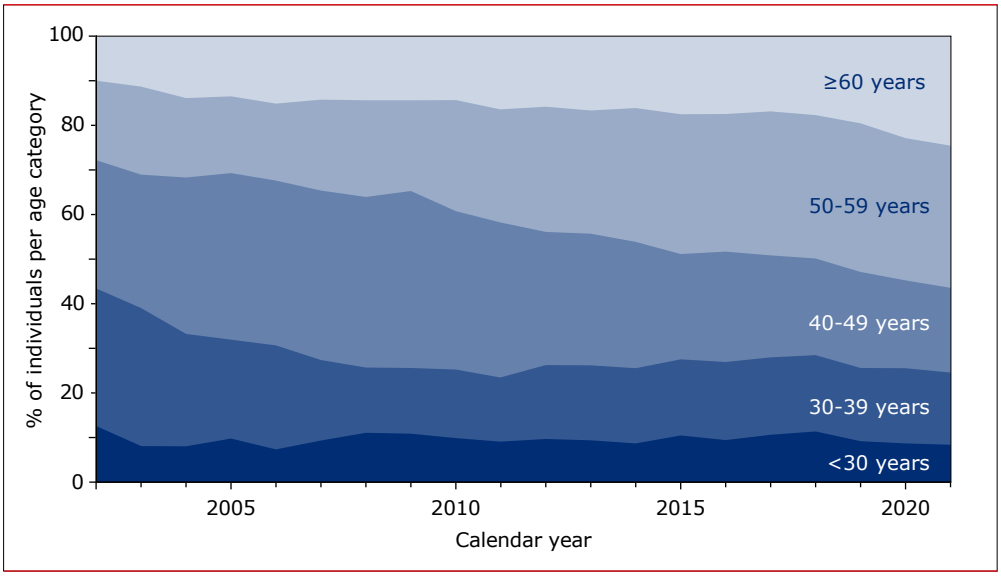
- 154 (59%) originated from the former Netherlands Antilles;
- 49 (19%) were from Haiti;
- 28 (11%) were from the Dominican Republic; and
- 32 (12%) were from other countries.

The 717 people in clinical care in 2021 included 14 individuals who did not have a clinical visit, CD4 cell count or HIV RNA measurement in 2020, but had previously received care for their HIV infection. Four of these individuals had not been in care for more than three years.

Ageing population

The median age of the population in care by the end of 2021 was 52 years (IQR 40-60), a figure which has been increasing since 2002 (*Figure 9.2*). 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 (56%) are aged 50 years and over, including 54% of men and 60% of women. A quarter of those in care (25%) are 60 years and over.

Figure 9.2: 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 2021, these proportions were 8% and 56%, respectively, while 25% 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 2021 had been diagnosed with HIV a median of 10.8 years (IQR 6.0-17.3) previously. Therefore, a large group (54%) has lived with HIV for more than 10 years; 17% for more than 20 years (*Table 9.2*). The median time since diagnosis was 10.4 years for MSM, 10.6 years for other men, and 11.6 years for women.

Table 9.2: Characteristics of the 717 individuals with an HIV-1 infection in clinical care in Curaçao by the end of 2021.

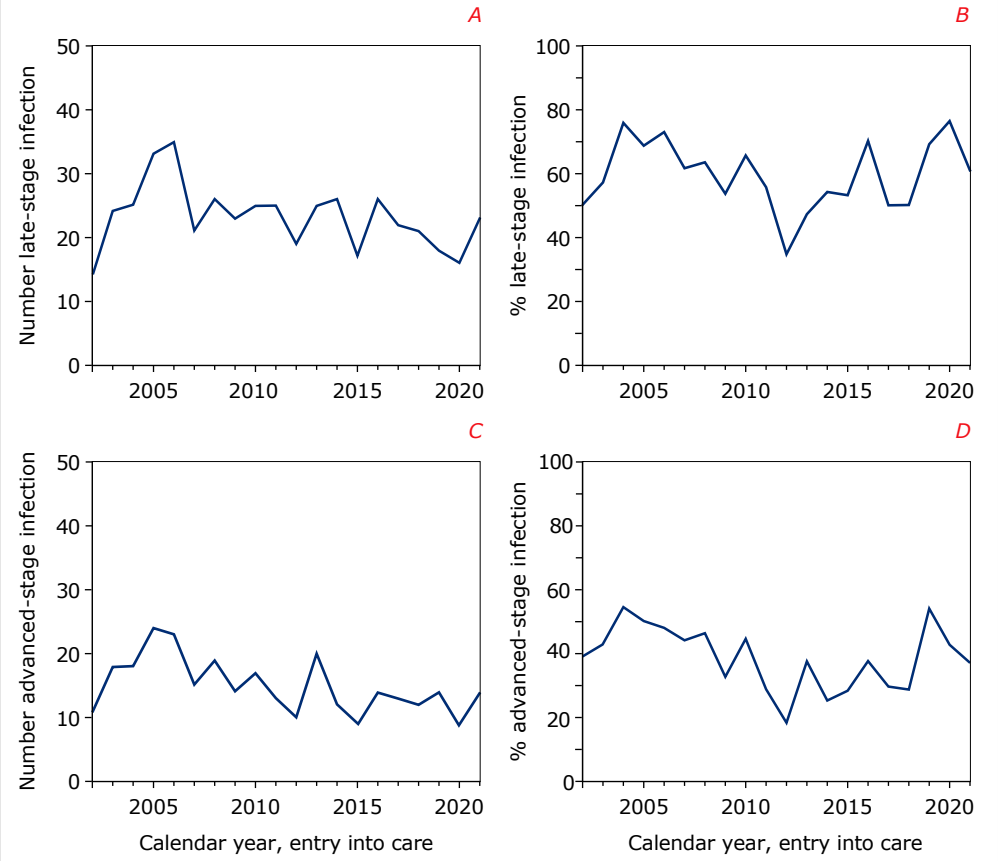
	Men (n=443, 62%)		Women (n=274, 38%)		Total (n=717)	
	n	%	n	%	n	%
Transmission						
MSM	166	37	-	-	166	23
Heterosexual	180	41	260	95	440	61
Other/unknown	97	22	14	5	111	15
Current age (years)						
0-14	2	1	2	1	4	1
15-24	10	2	7	3	17	2
25-29	23	5	16	6	39	5
30-39	77	17	39	14	116	16
40-49	90	20	46	17	136	19
50-59	138	31	91	33	229	32
60-69	71	16	51	19	122	17
≥70	32	7	22	8	54	8
Country of origin						
Former Netherlands Antilles	368	83	184	67	552	77
The Dominican Republic	9	2	41	15	50	7
Haiti	23	5	26	9	49	7
The Netherlands	10	2	0	0	10	1
Other	33	7	23	8	56	8
Years aware of HIV infection						
<1	22	5	8	3	30	4
1-2	35	8	17	6	52	7
3-4	41	9	23	8	64	9
5-9	113	26	67	24	180	25
10-19	159	36	106	39	265	37
≥20	71	16	51	19	122	17
Unknown	2	1	2	1	4	1

***Legend:** MSM = sex between men.*

Late presentation

Among the 1,225 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[1]. The proportion of late presenters was 57% among individuals entering care in 2002-2018, and remained at a high level of 67% among those entering care in 2019 or later (*Figures 9.3A* and *9.3B*).

Figure 9.3: *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 2019 onwards, 57 (67%) individuals presented with late HIV disease while 37 (44%) were advanced presenters. Late-stage HIV infection: CD4 cell counts below 350 cells/mm³ or having AIDS, regardless of CD4 cell count. Advanced-stage HIV infection: CD4 cell counts below 200 cells/mm³ or having AIDS. 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 2019 onwards, the stage of infection was unknown for 15 (15%) individuals.*



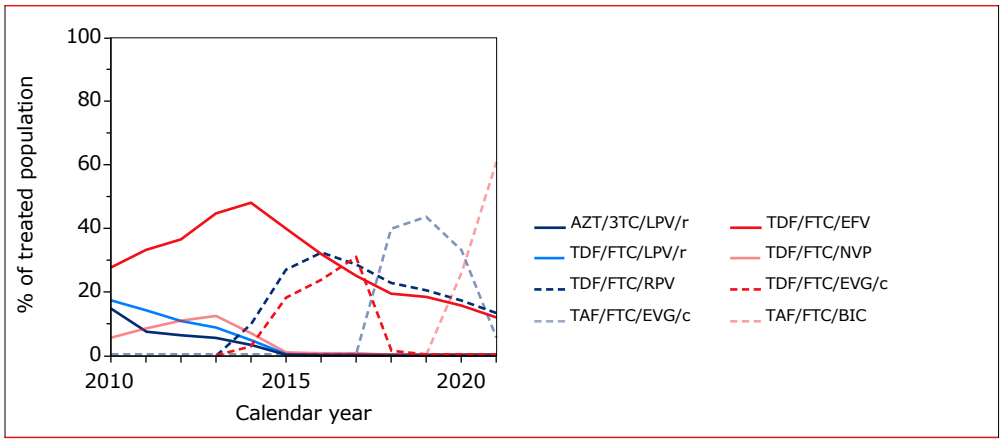
Advanced HIV infection (i.e. with a CD4 cell count below 200 cells/mm^3 or AIDS) was found in 37% in 2002-2018 and in 44% in 2019 or later (*Figures 9.3C* and *9.3D*). In total, 11 (11%) of the individuals who entered care since 2019 presented with an AIDS-defining disease. There were no significant differences in the proportion of individuals with late presentation in 2019 or later between MSM (71%), other men (67%), and women (65%).

Antiretroviral therapy (ART)

In total, 1,247 (92%) of the 1,349 registered individuals with HIV-1 had started antiretroviral therapy by the end of 2021. Of the 102 people who had not started therapy by that time, 93 were no longer in care, including 35 who had died. None of these 93 individuals had been seen for HIV care after 2017. Two of the 102 individuals who had not started therapy, managed to achieve HIV RNA levels below the lower limit of quantification without therapy. The other seven individuals started therapy in 2022, or their ART may not have been recorded yet.

Over time there have been clear shifts in the ART regimens prescribed in Curaçao (*Figure 9.4*). Of the 714 people who were still in care by the end of 2021 and had started ART:

Figure 9.4: *Percentage of individuals treated with antiretroviral therapy (ART) by specific regimens over calendar time. At the end of 2021, 61% were receiving TAF/FTC/BIC, 13% TDF/FTC/RPV, 12% TDF/FTC/EFV, and 6% TAF/FTC/EVG/c.*



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.*

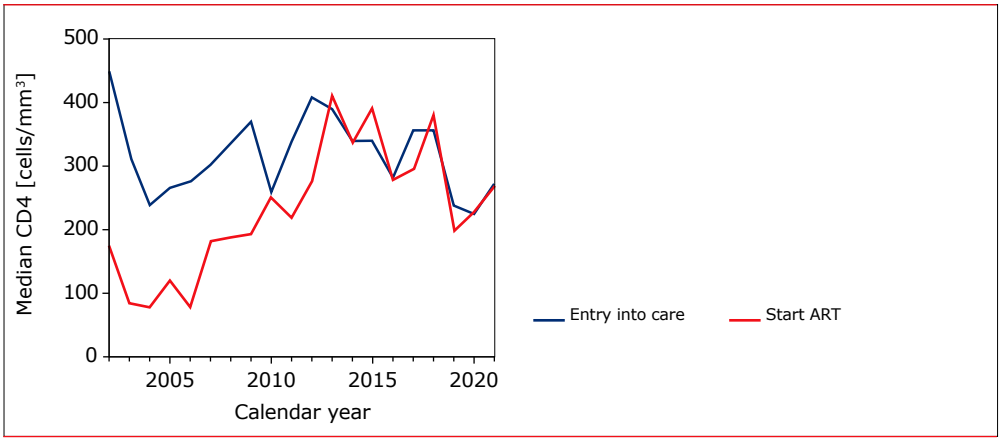
- 61% were being treated with a combination of tenofovir alafenamide, emtricitabine, and bictegravir;
- 13% with tenofovir disoproxil, emtricitabine, and rilpivirine;
- 12% with tenofovir disoproxil, emtricitabine, and efavirenz; and
- 6% with tenofovir alafenamide, emtricitabine, and cobicistat-boosted elvitegravir.

The majority (97%) used a once-daily regimen, with 92% being treated with a fixed-dose, single tablet regimen.

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 9.5*). 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 2019-2021, 96% 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:

- 45% had a measurement below 200 CD4 cells/mm^3;
- 21% had a measurement between 200 and 349 cells/mm^3;
- 16% had a measurement between 350 and 499 cells/mm^3; and
- 18% had CD4 cell counts of 500 cells/mm^3 or higher.

Figure 9.5: *Changes over calendar time in median CD4 cell counts at entry into care and at the start of antiretroviral therapy (ART). In 2019-2021, CD4 cell counts at entry into care were 250 cells/mm^3 (interquartile range [IQR] 130-418) and were similar, 232 cells/mm^3 (IQR 114-393), at the start of therapy.*

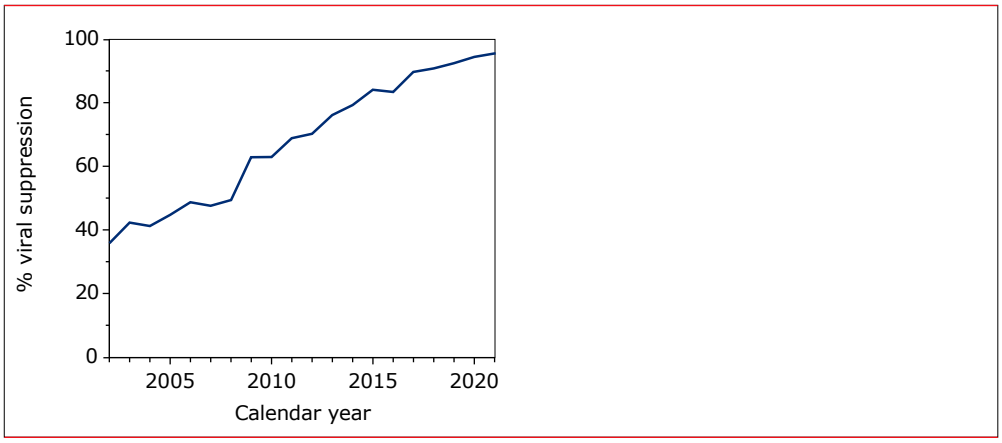


Legend: *ART = antiretroviral therapy.*

Therapy outcome

In the total population still in care by the end of 2021, the median current CD4 cell count was 501 cells/mm^3 (IQR 315-743). CD4 cell counts were highest in women (603 cells/mm^3; IQR 376-826) followed by MSM (502 cells/mm^3; IQR 356-726) and men who acquired their infection via other or unknown modes of transmission (403 cells/mm^3; IQR 244-618). 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 2021 (*Figure 9.6*).

Figure 9.6: *Proportion of people in care with HIV RNA <200 copies/ml at their last viral load measurement in each calendar year.*

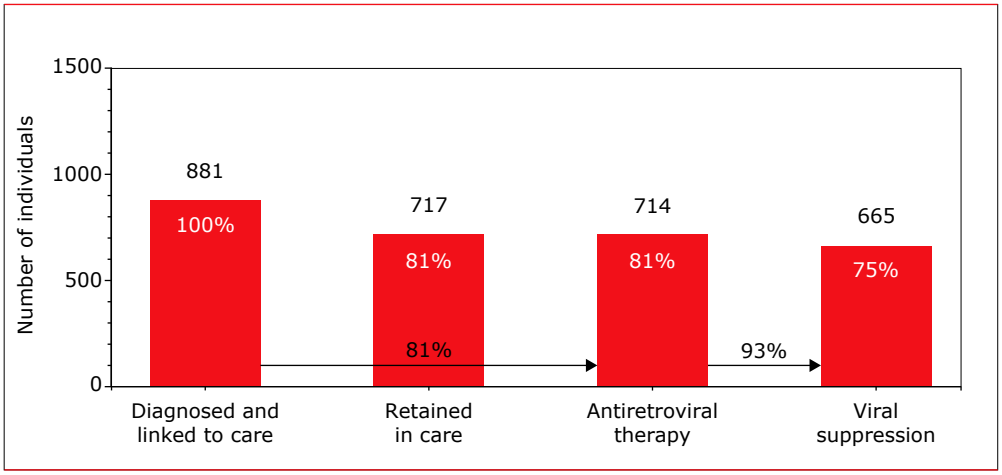


Continuum of HIV care

In total, 881 individuals had been diagnosed and linked to care, registered by SHM, had received HIV care in 2011 or later, and were not recorded in the SHM database as having died or moved abroad (*Figure 9.7*). Altogether:

- 717 people (or 81% 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 2021;
  - 714 (or 81% of those diagnosed and linked to care) of whom had started ART;
    - 695 (97% of those who started therapy) of whom had an HIV RNA measurement available in 2021; and
      ~665 (96%, or 93% of those treated) of those had a most recent HIV RNA level below 200 copies/ml.

Figure 9.7: Continuum of HIV care for the population with HIV-1 in Curaçao diagnosed and linked to care by the end of 2021. 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 the second and third of UNAIDS' 95-95-95 targets.



Overall, 75% of the 881 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 81-93: 81% of all people diagnosed receive antiretroviral therapy, and 93% of people receiving ART have a suppressed viral load[2].

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 714 individuals who had started ART, 49 (7%) did not have a suppressed viral load. On closer inspection, 19 (39%) of these individuals were found to have no documented HIV RNA measurement in 2021. The remaining 30 (61%) had a viral load measurement in 2021, but with HIV RNA levels exceeding 200 copies/ml. Of these 30 individuals, two 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 28 individuals with HIV RNA levels above 200 copies/ml had been on ART for longer than six months.

Lost to care

In total, 263 individuals were lost to care by the end of 2021, of whom:

- 99 (38%) were last seen for care before the end of 2011;
- 104 (40%) between 2012 and 2017;
- 18 (7%) in 2018
- 30 (11%) in 2019; and
- 12 (5%) in 2020.

The 99 individuals who were lost to care before 2011 were excluded from the number of people diagnosed and linked to care. It is unlikely that these 99 individuals are still living in Curaçao without requiring care or ART. In total, 54 (33%) of the 164 individuals lost to care were born outside the former Netherlands Antilles, including 21 in Haiti and 11 in the Dominican Republic. For those still in care by the end of 2021, 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 relatively high proportion of people lost to care is worrisome and may result in underreporting of death and/or outmigration. Furthermore, the proportion of people entering care with late-stage HIV infection remained high in recent years.

The impact of the COVID-19 pandemic on HIV care in Curaçao appears to be limited. The number of individuals newly diagnosed with HIV in 2020 and 2021 was comparable with 2019, and in people who were receiving HIV care the proportion with a suppressed viral load remained high. There was, however, quite a substantial group of 30 individuals who were last seen for care in 2019 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. In respect of the latter, a crucial step has been taken with the addition of data on children with HIV. In 2021 three children below the age of 15 years were newly registered with SHM, including two who had already received HIV care for several years.

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.

References

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