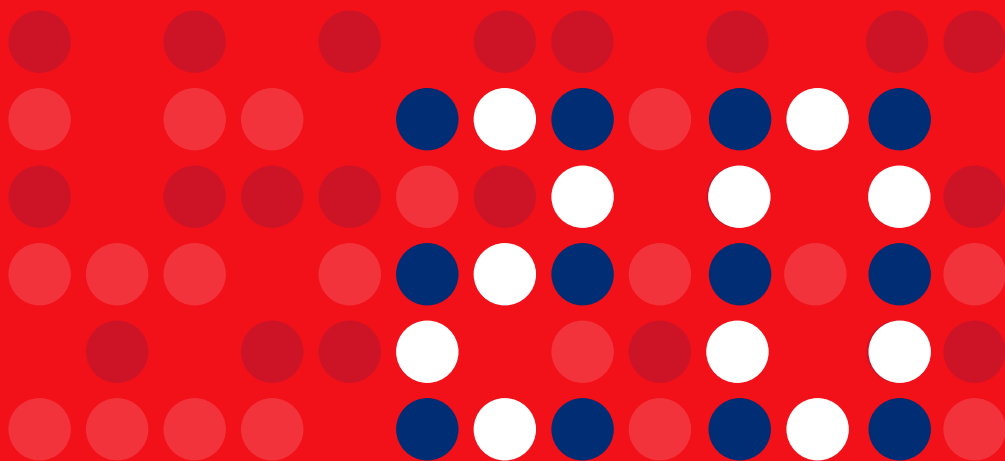


Human Immunodeficiency Virus (HIV)  
Infection in the Netherlands



# HIV Monitoring Report

# 2020



# Special report

## 9. Curaçao

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### Introduction

Since 2005, Stichting HIV Monitoring (SHM) has assisted in collecting demographic and clinical data about HIV-positive individuals receiving care at the St. Elisabeth Hospital in Willemstad in Curaçao. As a result of this registration and monitoring, an extensive database has been established. Such a database is unique for the region and gives a clear picture of the HIV-positive population, 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 state of the HIV epidemic in Curaçao.

### Population

In total, 1,274 HIV-positive individuals registered by SHM have been followed in the St. Elisabeth Hospital in Curaçao. Of these people, the majority were diagnosed with HIV-1 (1,260; 99%), while two individuals were diagnosed with HIV-2, and two had antibodies against both HIV-1 and HIV-2. For ten individuals, serological results on HIV type were not available in the SHM database.

### People newly diagnosed with HIV-1

At the time of writing, 1,244 individuals were diagnosed with HIV-1 and had a recorded date of diagnosis (*Table 9.1*). Of these 1,244 individuals, five were born abroad and had a documented HIV diagnosis prior to arrival in Curaçao. The remaining 1,239 individuals, including 321 (26%) individuals born in the former Netherlands Antilles, were newly diagnosed while living in Curaçao, or information on where they lived at the time of diagnosis was not yet available. Of these 1,239 people, 44 (4%) were diagnosed before the age of 18 years. The 1,195 individuals who were diagnosed as adults comprised 277 (23%) men who reported sex with men (MSM) as the most likely mode of transmission, 492 (41%) other men, and 426 (36%) women (*Table 9.1*). Between 2000 and 2018, the annual number of newly-diagnosed infections hovered around 50, and decreased to 17 in 2019. However, at the time of writing, there may have been some backlog in reporting HIV infections newly diagnosed in 2019, due to the transition to a new hospital at the end of that year.

### People in clinical care

In total, 683 (54%) of the 1,260 registered HIV-1-positive individuals were known to be in clinical care in Curaçao by the end of 2019. People were considered to be in clinical care if they had visited their treating physician in 2019, or had a CD4 count or HIV RNA measurement during that year and had not moved abroad. Of the 577 individuals who, according to this definition, were not in care by the end of 2019, 191 (33%) are known to have died, and 122 (21%) to have moved abroad, while 257 were lost to care. Another three were only diagnosed with HIV in 2020, three moved to Curaçao in 2020, and one entered care in 2020. Of the 257 people lost to care, 59 (23%) had their last visit within a year of entering care; another 32 (12%) had no follow-up visit after entering care.

*Table 9.1: Annual number of newly-diagnosed HIV-1 infections in Curaçao among minors less than 18 years of age, and among adult men who acquired HIV via sex with men (MSM), other men, and women.*

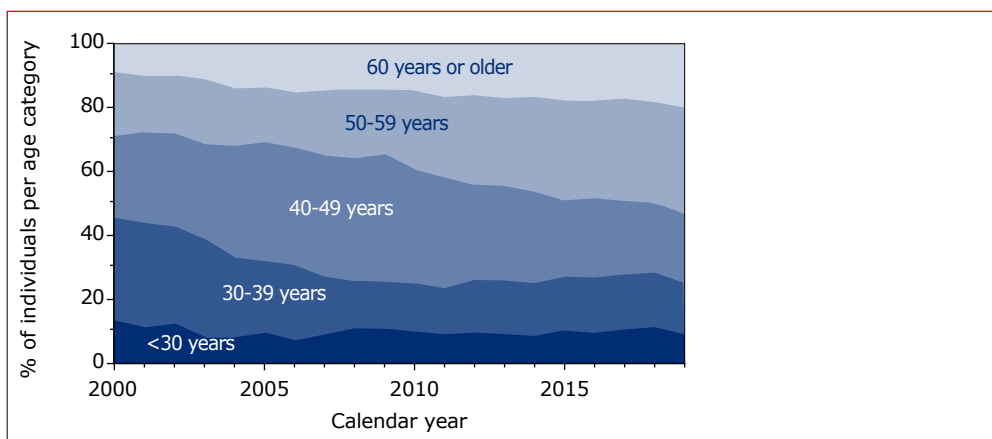
Year of diagnosis	MSM	Other men	Women	<18 years of age	Total
≤1999	37	112	82	23	254
2000	9	17	17	3	46
2001	5	13	16	2	36
2002	11	19	17	2	49
2003	9	29	21	0	59
2004	7	24	19	0	50
2005	14	20	19	0	53
2006	8	23	17	1	49
2007	15	16	10	2	43
2008	14	16	20	2	52
2009	11	19	21	1	52
2010	5	20	19	2	46
2011	14	19	24	1	58
2012	16	18	25	1	60
2013	22	31	23	0	76
2014	15	15	13	1	44
2015	17	21	12	1	51
2016	13	23	15	0	51
2017	15	15	13	0	43
2018	15	12	19	1	47
2019	4	9	3	1	17
2020	1	1	1	0	3
<b>Total</b>	<b>277</b>	<b>492</b>	<b>426</b>	<b>44</b>	<b>1,239</b>

*Note: data collection for 2019 may not have been finalised at the time of writing.*

### Ageing population

The median age of the population in care by the end of 2019 was 51 (interquartile range [IQR], 40-58) years and has been increasing since 2000 (Figure 9.1). This increase in age is mainly a result of the improved life expectancy of HIV-positive individuals after the introduction of combination antiretroviral treatment (cART). As a result, more than half of all people currently in care (53%) are 50 years or older, including 52% of men and 54% of women; 20% of the individuals are 60 years or older. Among the 110 individuals diagnosed in 2017 or later, the median age at diagnosis was 33 (26-45) years with no differences between men and women. Of these 110 individuals, 18 (16%) were 50 years or older at the time of their diagnosis, while 40 (36%) were younger than 30 years of age.

*Figure 9.1: Increasing age of the HIV-1-positive population in clinical care in Curaçao over calendar time. In 2000, 13% of the people in care were younger than 30 years of age, whereas 29% were 50 years or older. In 2019, these proportions were 9% and 53%, respectively, while 20% of people in care were 60 years of age or older. 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 to 39 years, 40 to 49 years, 50 to 59 years, and 60 years or older.*



### Duration of infection

People in care by the end of 2019 had been diagnosed with HIV a median of 9.5 (IQR, 4.9-15.9) years previously. Therefore, a large group (47%) have lived with HIV for more than 10 years; 14% for more than 20 years (Table 9.2). The median time since diagnosis was 8.3 years for MSM, 9.5 years for other men, and 10.1 years for women.

Table 9.2: Characteristics of the 683 HIV-1-positive individuals in clinical care in Curaçao by the end of 2019.

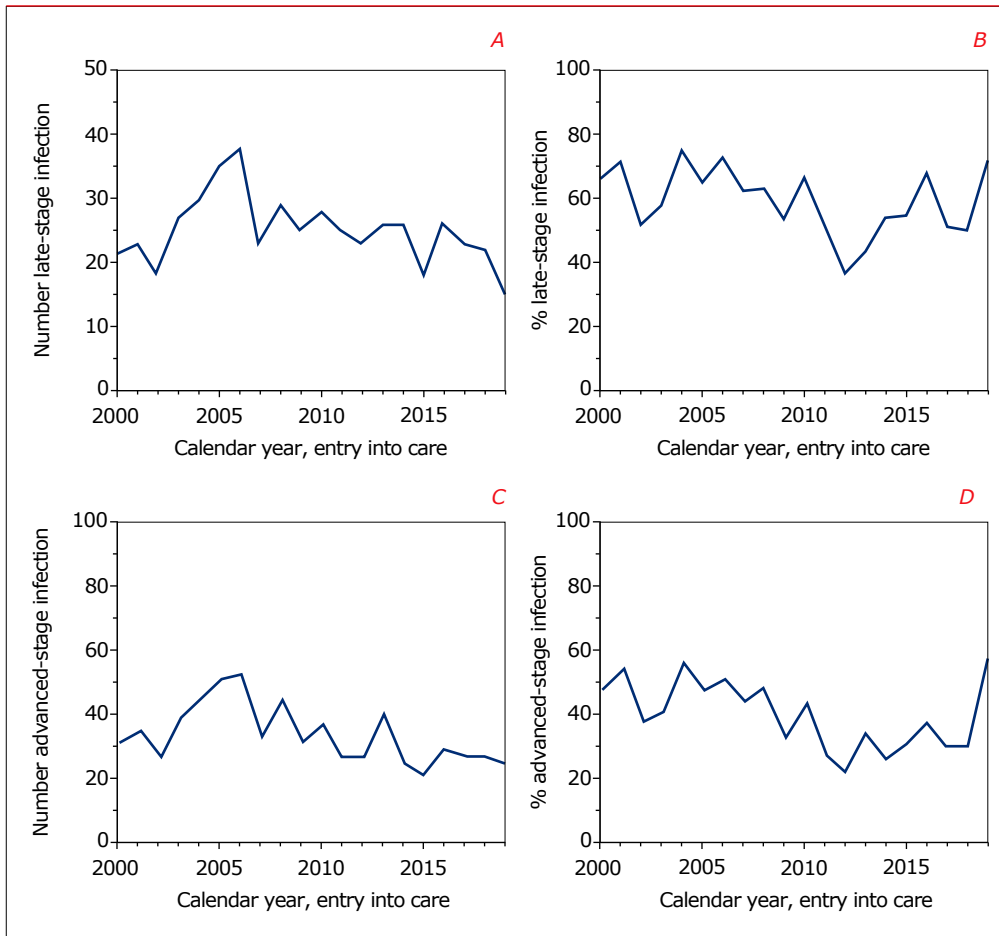
	Men (n=429, 63%)		Women (n=254, 37%)		Total (n=683)	
	n	%	n	%	n	%
<b>Transmission</b>						
MSM	171	40	–	–	171	25
Heterosexual	180	42	238	94	418	61
Other/unknown	78	18	16	6	94	14
<b>Current age (years)</b>						
0–17*	–	–	1	–	1	–
18–24	10	2	6	2	16	2
25–29	35	8	9	4	44	6
30–39	72	17	39	15	111	16
40–49	87	20	61	24	148	22
50–59	138	32	90	35	228	33
60–69	61	14	31	12	92	13
≥70	26	6	17	7	43	6
<b>Country of origin</b>						
Former Netherlands Antilles	356	83	165	65	521	76
Dominican Republic	10	2	40	16	50	7
Haiti	23	5	27	11	50	7
The Netherlands	11	3	1	0	12	2
Other	29	7	21	8	50	7
<b>Years aware of HIV infection</b>						
<1	13	3	4	2	17	2
1–2	47	11	26	10	73	11
3–4	59	14	23	9	82	12
5–10	111	26	72	28	183	27
10–20	139	32	88	35	227	33
>20	57	13	40	16	97	14
Unknown	3	1	1	0	4	1

Legend: MSM=men who have sex with men; \*data on children and adolescents are not yet collected.

### Late presentation

A large proportion of people who have entered care since 2000 were late presenters; in other words, individuals who presented for care with a CD4 count below 350 cells/mm<sup>3</sup>, or presented with an AIDS-defining event regardless of CD4 count<sup>1</sup>. The proportion of late presenters was 58% among individuals entering care between 2000 and 2016, and remained at a high level (54%, or 20 individuals on average each year) among those entering care in 2017 or later (*Figures 9.2A and 9.2B*). In contrast, there appears to have been a decrease in the proportion of people presenting for care with advanced HIV infection (i.e., with a CD4 count less than 200 cells/mm<sup>3</sup> or AIDS). In 2000, 15 (47%) individuals presented with advanced HIV infection, while this proportion was 34% among those presenting for care in 2017 or later (*Figures 9.2C and 9.2D*). In 2019, however, more than half of the people entering care had advanced-stage HIV infection, although the absolute number was similar to the years before. In total, 11% of the individuals who have entered care since 2000 have presented with an AIDS-defining disease.

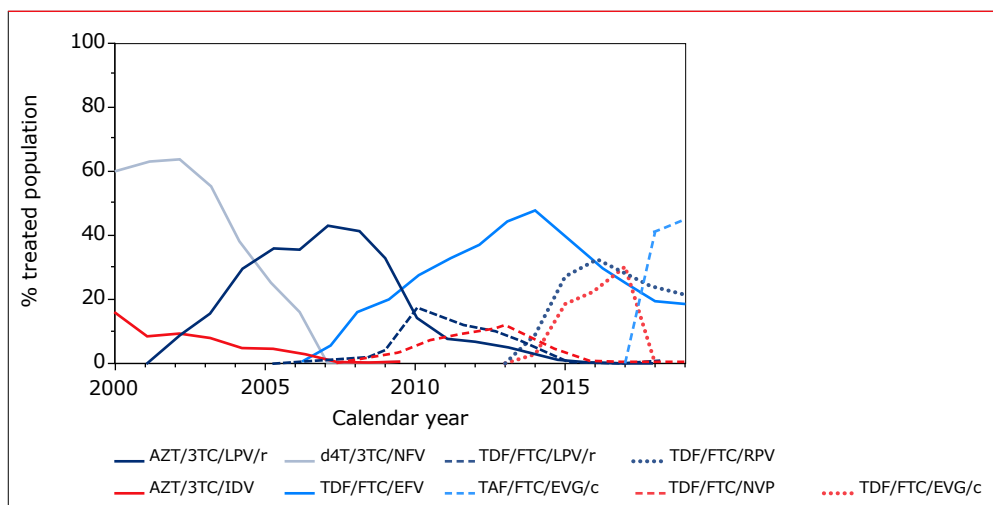
**Figure 9.2:** Number and proportion of people classified as presenting with (A, B) late-stage or (C, D) advanced-stage HIV infection at the time of entry into care. From 2017 onwards, 61 (54%) individuals presented with late HIV disease while 38 (33%) were advanced presenters. Late-stage HIV infection: CD4 counts below 350 cells/mm<sup>3</sup> or having AIDS, regardless of CD4 count. Advanced-stage HIV infection: CD4 counts below 200 cells/mm<sup>3</sup> or having AIDS. As a pre-treatment CD4 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 2017 onwards, the stage of infection was unknown for 21 (16%) individuals.



### Antiretroviral treatment

In total, 1,159 (92%) of the 1,260 registered HIV-1-positive individuals had started antiretroviral treatment by May 2020. Over time, there have been clear shifts in the treatment regimens prescribed in Curaçao (Figure 9.3). Of the people who started antiretroviral treatment and were still in care by the end of 2019, 45% were being treated with a combination of tenofovir alafenamide, emtricitabine, and cobicistat-boosted elvitegravir; 21% with tenofovir disoproxil/emtricitabine/rilpivirine; and 19% with tenofovir disoproxil/emtricitabine/efavirenz. The majority (97%) used a once-daily regimen, with 86% being treated with a fixed-dose single tablet regimen.

Figure 9.3: Percentage of individuals treated with antiretroviral therapy (ART) by specific regimens over calendar time. At the end of 2019, 45% of the people were receiving TAF/FTC/EVG/c, 21% RPV/TDF/FTC, and 19% TDF/FTC/EFV.

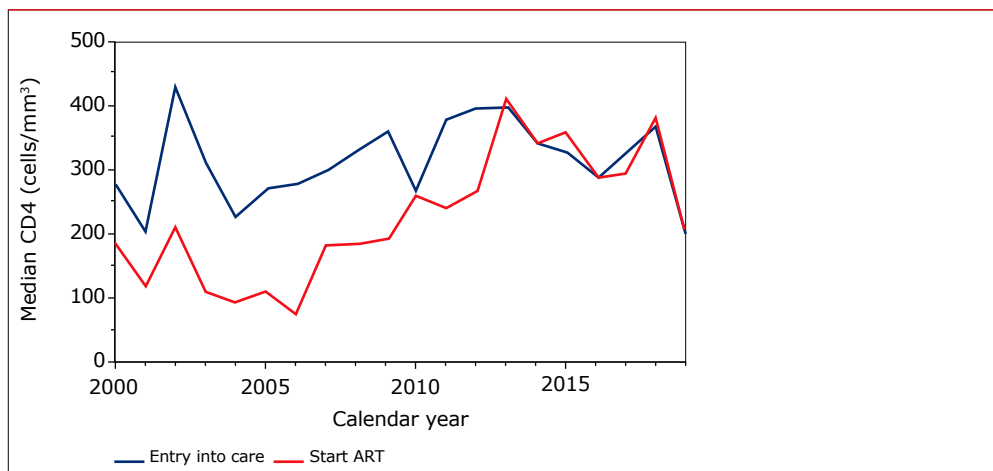


Legend: AZT=zidovudine; 3TC=lamivudine; LPV/r=ritonavir-boosted lopinavir; d4T=stavudine; NFV=nelfinavir  
TAF=tenofovir alafenamide; TDF=tenofovir disoproxil fumarate; FTC=emtricitabine; RPV=rilpivirine; IDV=indinavir;  
EFV=efavirenz; NVP=nevirapine; EVG/c=cobicistat-boosted elvitegravir.

Since the mid-2000s, there has been an increase in CD<sub>4</sub> cell counts at the start of treatment, reflecting changes in guidelines on when to start (Figure 9.4). Between 2017 and 2019, 33% of those for whom a CD<sub>4</sub> count was available at the start of treatment had less than 200 CD<sub>4</sub> cells/mm<sup>3</sup>; 22% had CD<sub>4</sub> counts between 200 and 349 cells/mm<sup>3</sup>; 25% had CD<sub>4</sub> counts between 350 and 499 cells/mm<sup>3</sup>; and 19% had CD<sub>4</sub> counts of 500 cells/mm<sup>3</sup> or higher. During the same period, 95% of the people entering care received treatment within six months, irrespective of their CD<sub>4</sub> count.



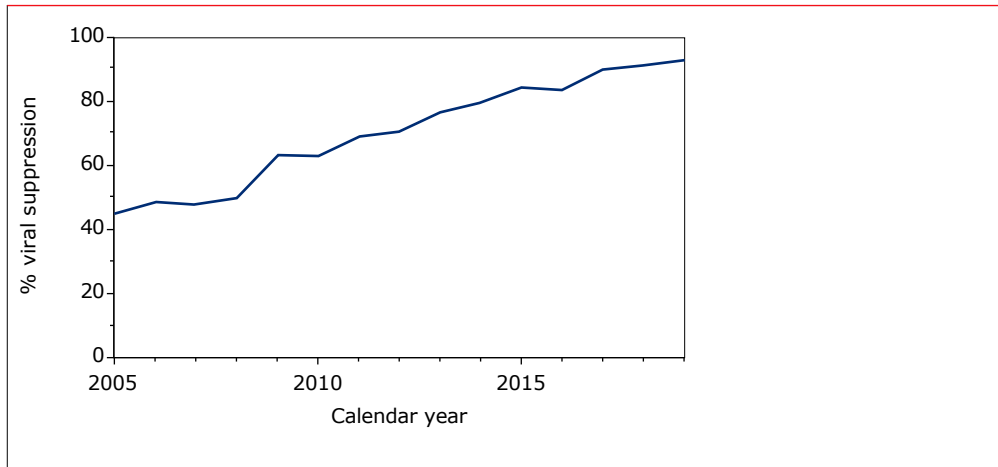
**Figure 9.4:** Changes over calendar time in median CD4 counts at entry into care and at the start of antiretroviral treatment (ART). In 2000, median CD4 counts were 275 (interquartile range [IQR], 144–449) cells/mm<sup>3</sup> at entry into care and 186 (69–313) cells/mm<sup>3</sup> at start of treatment. Between 2017 and 2019, CD4 counts at entry into care were 332 (169–465) cells/mm<sup>3</sup> and were very similar, 309 (155–459) cells/mm<sup>3</sup>, at start of treatment.



### Treatment outcome

In the total population still in care by the end of 2019, the median current CD4 count was 480 (IQR, 335–678) cells/mm<sup>3</sup>. CD4 counts were similar between MSM (504 [IQR, 364–723] cells/mm<sup>3</sup>) and women (516 [366–729] cells/mm<sup>3</sup>), but men who acquired their infection via other or unknown modes of transmission had lower CD4 counts (426 [265–627] cells/mm<sup>3</sup>). Among individuals with a viral load measurement, the proportion with HIV RNA levels less than 200 copies/ml, increased from 45% in 2005 to 93% in 2019 (Figure 9.5).

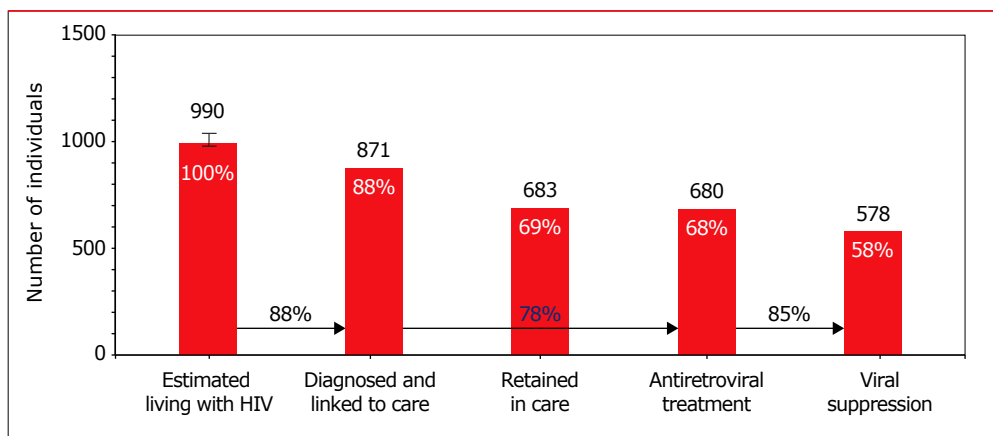
Figure 9.5: Proportion of people in care with HIV RNA <200 copies/ml at their last viral load measurement in each calendar year.



### Continuum of HIV care

The total number of people living with HIV by the end of 2019, including those not yet diagnosed, was estimated to be 990 (95% confidence interval [CI] 980-1,030), of whom 122 (110-160) were still undiagnosed (*Figure 9.6*)<sup>2</sup>. In total, 871 individuals, or 88% of the total number estimated to be living with HIV, had been diagnosed, linked to care, and registered by SHM, and were not recorded in the SHM database as having died or moved abroad. Altogether, 683 (69%) people were still in care; in other words, they had had at least one HIV RNA or CD4 count measurement or a clinic visit in 2019. The majority of these 683 individuals (680, or 78% of those diagnosed and linked to care) had started antiretroviral treatment; 623 (92% of those who started treatment) had an HIV RNA measurement available in 2019 and 578 (93%, or 85% of those treated) had a most recent HIV RNA below 200 copies/ml. Overall, 58% of the total estimated population living with HIV, and 66% of the 871 individuals diagnosed and ever linked to care, had a suppressed viral load. In terms of the Joint United Nations Programme on HIV/AIDS (UNAIDS) 90-90-90 target for 2020, the current estimate for Curaçao stands at 88-78-85: 88% of people living with HIV know their HIV status, 78% of all people diagnosed receive antiretroviral treatment, and 85% of people receiving treatment have a suppressed viral load<sup>3</sup>.

Figure 9.6: Continuum of HIV care for the total estimated HIV-1-positive population estimated to be living with HIV in Curaçao by the end of 2019. Percentages at the top of the bars are calculated relative to the number living with HIV, while percentages at the bottom correspond to UNAIDS' 90-90-90 targets.



### Viral suppression

Of the 680 individuals who had started antiretroviral treatment, 102 (15%) did not have a suppressed viral load. On closer inspection, 57 (56%) of these individuals were found to have no documented RNA measurement in 2019. The remaining 45 (44%) people had a viral load measurement in 2019, but with RNA levels exceeding 200 copies/ml. Of these 45 individuals, five had not yet started treatment by the time of their last available viral load measurement in 2019, and five had only started treatment 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 35 individuals with RNA levels above 200 copies/ml, had been on antiretroviral treatment for longer than six months.

### Lost to care

In total, 257 individuals were lost to care; 69 (27%) before the end of 2009, and 188 (73%) after 2009. The 69 individuals who were lost to care before 2009, were excluded from the estimated number of people living with HIV and the number of people diagnosed and linked to care. It is unlikely that these 69 individuals are still living in Curaçao without needing care or antiretroviral treatment. Of the 188 individuals lost to care after 2009 (i.e., the difference between the second stage (871) and third stage (683) in the care continuum), 32 (12%) were last seen for care in 2018. In total, 59 (31%) of the 188 individuals were born outside the former Netherlands Antilles, including 24 in Haiti and 12 in the Dominican Republic:

for those still in care by the end of 2019, this percentage falls to 24%. 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 treatment offered to HIV-positive individuals 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 improved, enabling better monitoring of the progress towards achieving UNAIDS' 90-90-90 goals for 2020. However, the relatively high proportion of people lost to care is worrisome and may affect underreporting of death and/or outmigration. In addition, the proportion of people entering care with late-stage HIV infection remains high, although the proportion with advanced HIV disease appears to be decreasing.

Of note, data reported for 2019 may not yet be complete. As mentioned above, the hospital moved to a new building at the end of last year, which may have delayed notification to SHM of individuals newly diagnosed and enrolled in care around that time. Also, data collection for 2019, which normally would have been carried out in the first months of 2020, was hampered by a lack of access to electronic patient records for the data collector, as well as by the partial lockdown in Curaçao in response to the COVID-19 pandemic. Access to patient records has now been restored and data are expected to be complete in next year's monitoring report.

## Recommendations

Curaçao is in a unique position in the Caribbean, in that data from HIV-positive individuals in care are regularly collected and monitored. However, it is important that the quality of these data is maintained. Moreover, currently there is no regular data collection for HIV-positive children. As a result, data on children living with HIV in Curaçao are of unknown quality and are unsuitable for use in strategic planning of HIV care for this specific population. Therefore, data collection needs to be extended to also include children.

Early start of ART in adults appears possible, but long-term continuous follow up should be guaranteed to optimise the effect of ART. The continuum of care for Curaçao illustrates that while almost everyone who is still in care has started antiretroviral treatment, 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 in the hospital. As a result, retention in care will hopefully improve in the near future.

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

## References

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