

2019 NATIONAL HIV ESTIMATES AND PROJECTIONS

Ghana's National Estimates Team



GHANA AIDS COMMISSION

Under the Office of the President

Presentation Outline



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- 🦋 Introduction
- 🦋 National Estimates
 - 🦋 Creating Country Files
 - 🦋 HIV Estimates Framework
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Introduction



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- ✚ HIV Estimates data is critical for planning and understanding the magnitude of the HIV and AIDS epidemic.

- ✚ UNAIDS and partners over the years have supported countries to estimate the impact of HIV at the national and sub-national levels.

- ✚ The generation of Ghana's HIV estimates is primarily based on:
 - ✚ HSS-HIV Sentinel Surveillance among pregnant women attending Antenatal Care (ANC) Clinic
 - ✚ DHS: National population-based survey which includes HIV Testing
 - ✚ Program Data: ART and PMTCT
 - ✚ Other: Demographic and epidemiological assumptions



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2019 National Estimates

Creating Country Files



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- ✧ The National File is created using the SPECTRUM software (version 5.87 was used for the 2019 Estimates).

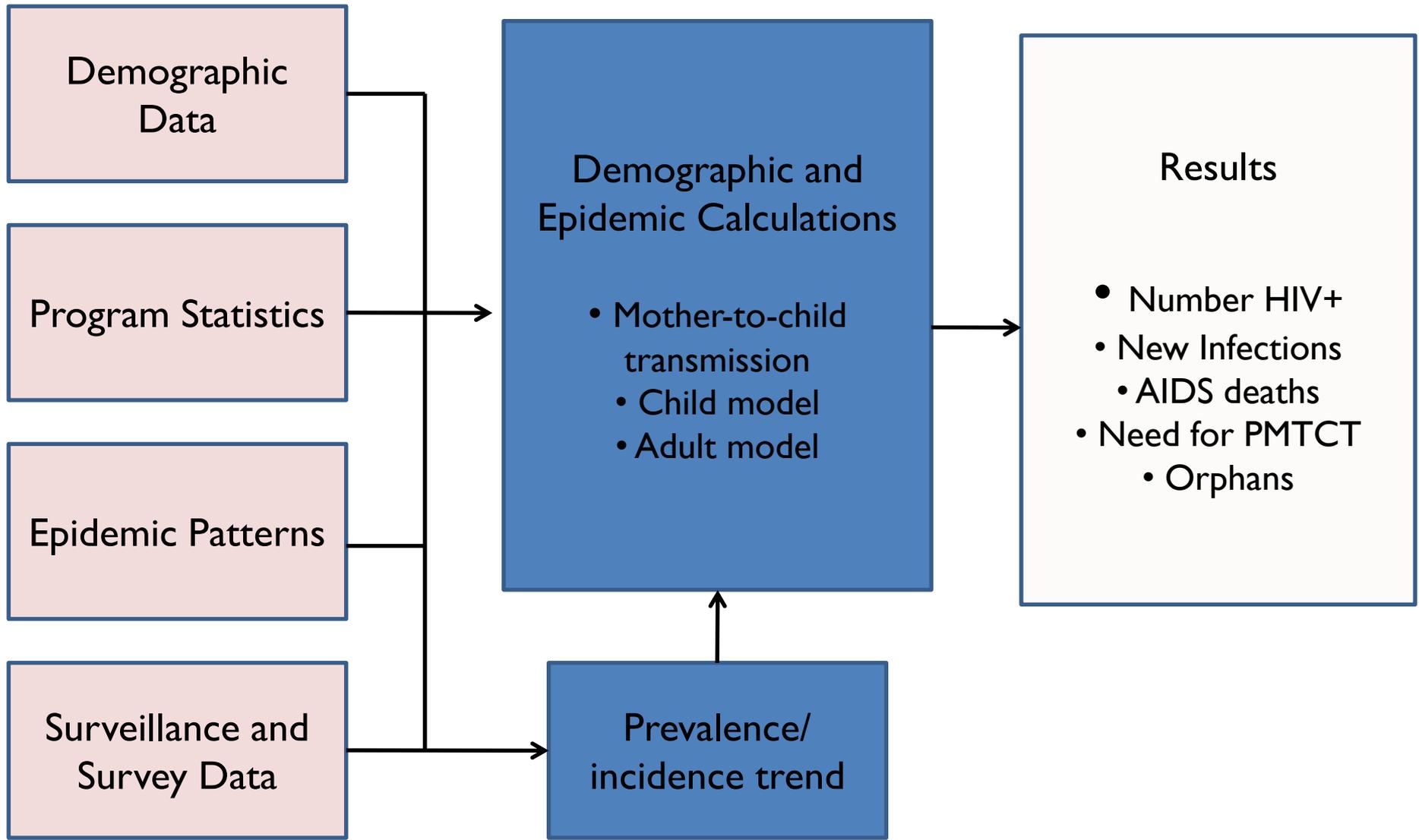
- ✧ The National Estimates Teams (NET) with support from UNAIDS and its partners create these files annually.

- ✧ File Creation Process
 - ✧ SPECTRUM Software updates and upgrading
 - ✧ Compiling and verification of data from data sources
 - ✧ Data entry into the SPECTRUM software and producing initial results
 - ✧ Finalized National SPECTRUM File reviewed for technical clearance by UNAIDS.
 - ✧ Results are reviewed by RM&E Committee for clearance before publication.

HIV Estimates Framework



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Data Input



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Program Data – PMTCT Program Data

Year	Option B: Triple Prophylaxis from 14 weeks		Option B: ART Started before current pregnancy		Option B: ART Started during current pregnancy > 4 weeks before delivery	
	No	%	No	%	No	%
2019	NA	NA	5,843		5,843	
2020	NA	NA	-	60	-	25
2021	NA	NA	-	73	-	20
2022	NA	NA	-	85	-	15
2023	NA	NA	-	85	-	15
2024	NA	NA	-	85	-	15
2025	NA	NA	-	85	-	15

Data Input Cont'd



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Program Data – Adult ART

Year	No. of Adult Receiving ART		% of Adults in need of receiving ART	
	No		%	
	Male	Female	Male	Female
2019	35,779	111,491		
2020	-	-	57	66
2021	-	-	69	74
2022	-	-	81	81
2023	-	-	84	84
2024	-	-	87	87
2025	-	-	90	90

Data Input Cont'd



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Program Data - Child Treatment

Year	No. and % Receiving Cotrimoxazole		No. and % receiving ART	
	No	%	No	%
2019	1,543		6,631	
2020	-	3	-	40
2021	-	3	-	50
2022	-	3	-	60
2023	-	3	-	70
2024	-	3	-	80
2025	-	3	-	90

Data Input Cont'd



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HIV Prevalence Data (HSS and Population based survey-DHS)

GDHS 2003

- Urban HIV Prevalence - 2.3%
 - Standard Error - 0.46
 - Unweighted Sample Size – 4,292
- Rural HIV Prevalence - 2%
 - Standard Error - 0.40,
 - Unweighted sample size -4,852

GDHS 2014

- Urban HIV Prevalence -2.3%
 - Standard Error - 0.30
 - Unweighted Sample Size – 3,981
- Rural HIV Prevalence - 1.70%
 - Standard Error - 0.20,
 - Unweighted sample size – 4,362

HIV Sentinel Surveillance 2019

- 54 Sites
 - 34 Urban and 20 Rural Sites
 - Urban- Median Prev
 - Rural – Median Prev

2015 - 2019 PMTCT Routine Data for HSS sites

- Urban
- Rural

Data Input Cont'd



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Program Data – Viral Suppression

Indicator	Disaggregation	2018	2019
# of people tested for viral suppression among those on treatment	Children 0-14	2,727	4,651
	Males(15+)	12,544	21,393
	Females(15+)	39,267	66,969
	Total	54,538	93,013
# of PLHIV with suppressed viral load	Children 0-14	1,811	3,176
	Males(15+)	8,332	14,611
	Females(15+)	26,083	45,739
	Total	36,226	63,526

Data Input Cont'd



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Other Variables Used in the Estimation Module

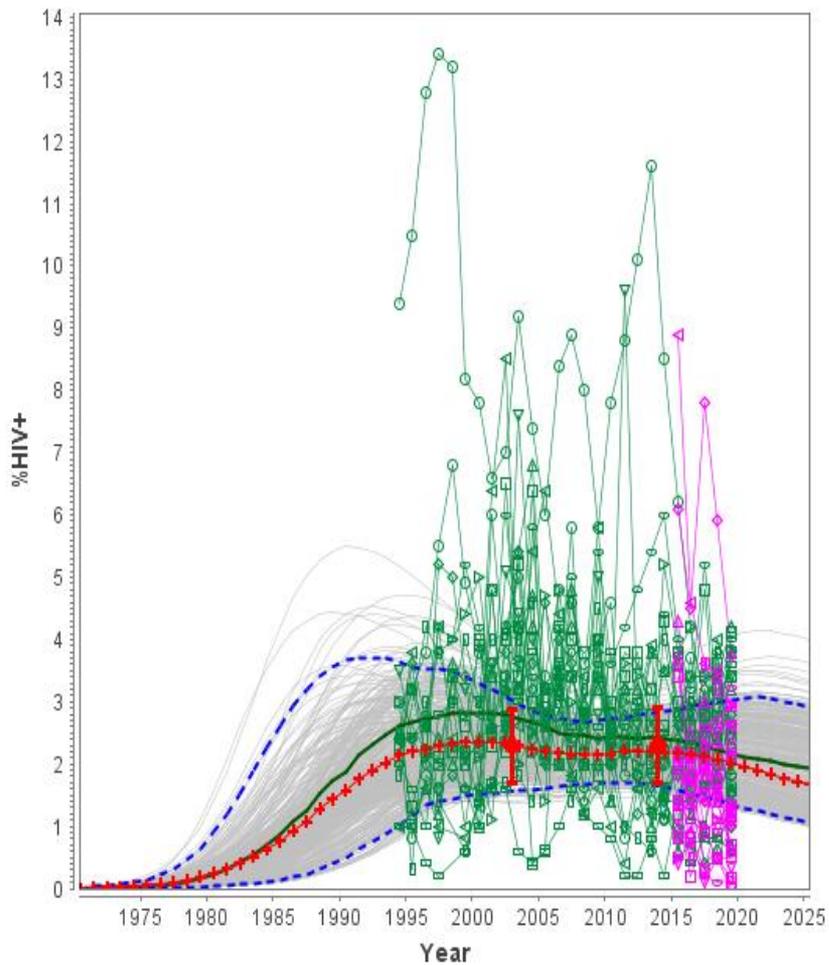
-  UN Projected Population Data (by age and sex)
-  Mortality (Life Expectancy)
-  AIDS Survival
-  Pediatric transmission parameters
-  Adult transmission parameters
-  HIV related fertility
-  MTCT transmission probabilities
-  Breast Feeding patterns

Epidemic Curves

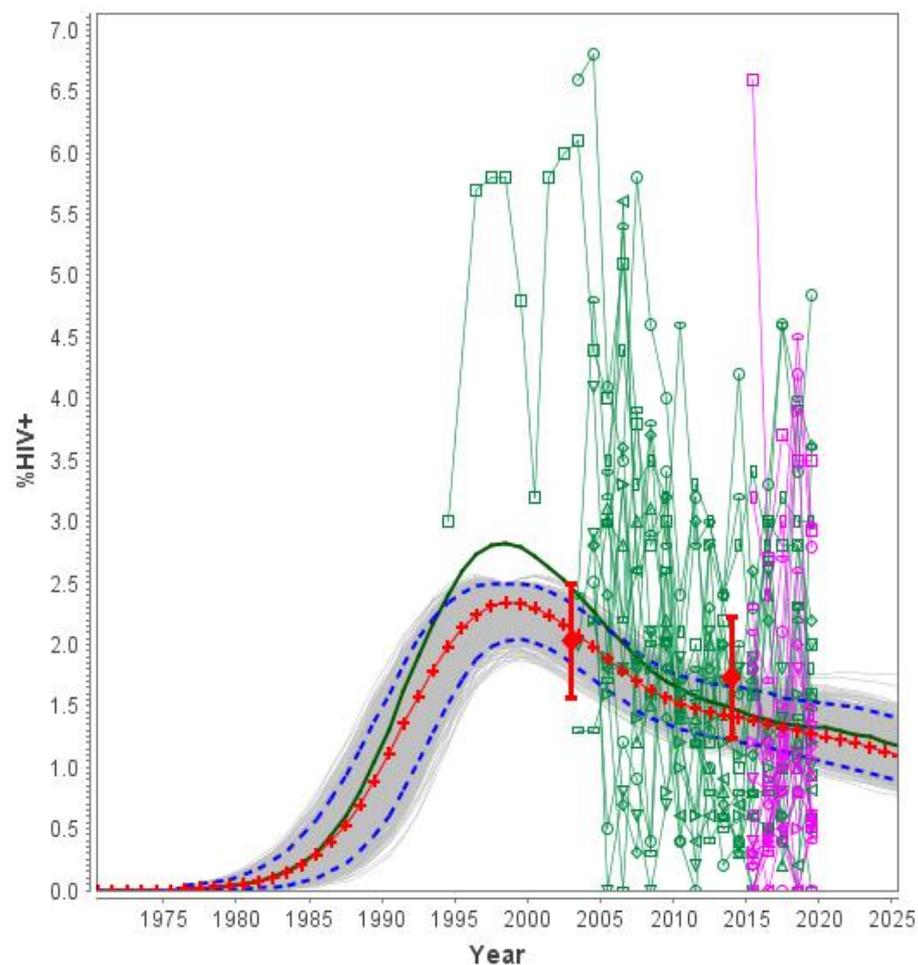


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Urban Curve



Rural Curve

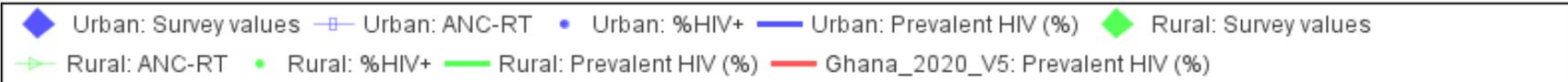
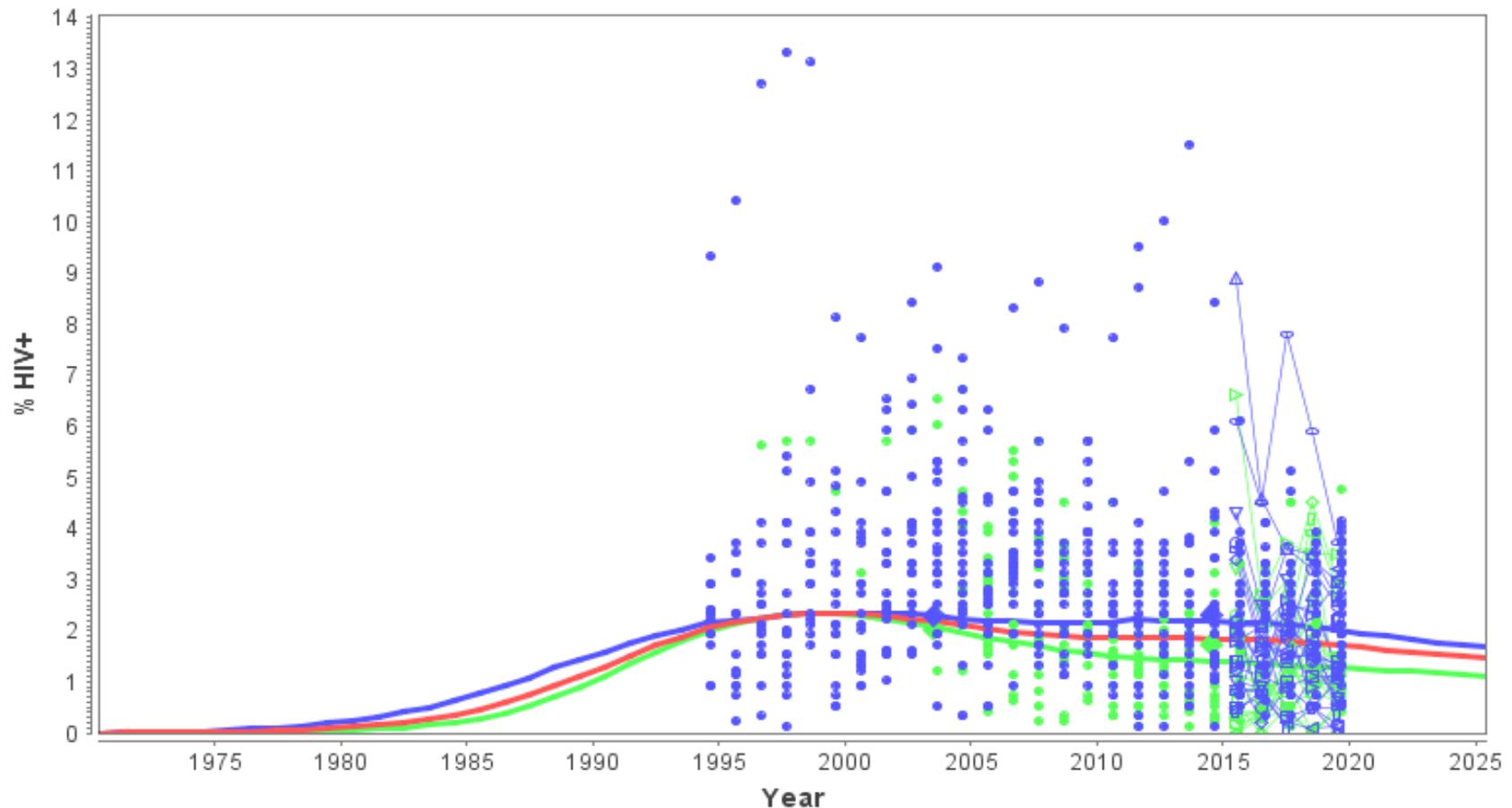


Epidemic Curves Cont'd



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National Epidemic Curve





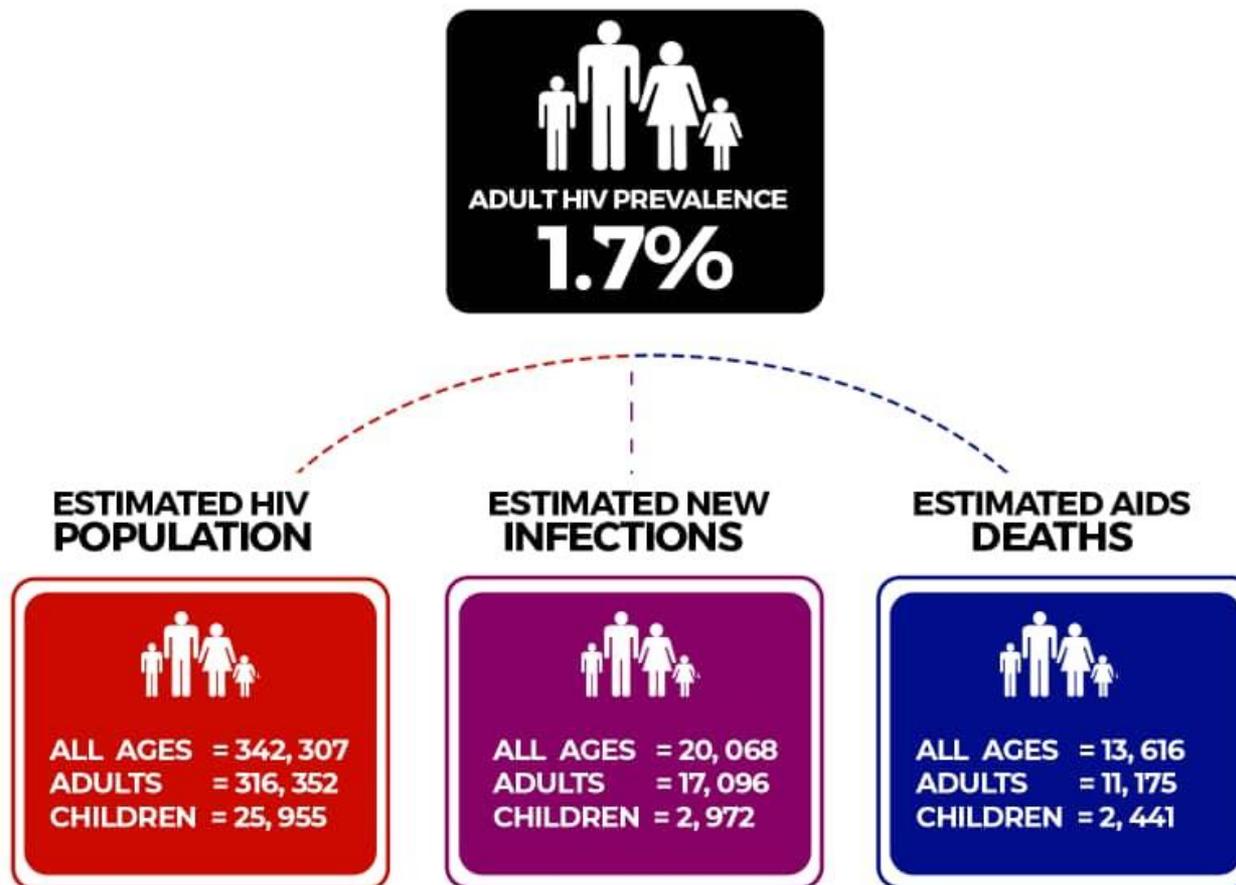
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Results

2019 National Estimates



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2019 National Estimates



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2019	Lower 2.50%	Median 50%	Upper 97.50%
HIV Adults + Children (All Ages)	246,346	342,307	463,199
HIV Population – Adults 15+	230,359	316,352	433,220
HIV Population – Children (0 -14)	16,368	25,955	37,285
HIV prevalence- Adults (15-49)	1.20	1.70	2.39
Number of new HIV infections (All Ages)	9,905	20,068	36,699
New HIV infections- Adults (15+)	8,327	17,096	30,381
New HIV infections- Children (0-14)	1,298	2,972	5,656
Total AIDS deaths (All Ages)	8,755	13,616	20,130
Annual AIDS deaths- Adults (15+)	7,219	11,175	16,179
Annual AIDS deaths- Children (0-14)	1,209	2,441	4,138
HIV incidence- Adults + Children (All Ages)	0.35	0.7	1.29
HIV incidence- Adults (15-49)	0.05	0.11	0.2
ART coverage of all HIV+ Adults (15+)	33.08	46.55	65.08
ART coverage of all HIV+ children (0-14)	17.85	26.15	42.16
Need for ART- Adults 15+ (Dec 31)	230,359	316,352	433,220
Need for ART- Children (0-14) (Dec 31)	15,894	25,356	36,655
PMTCT Coverage	32.74	74.92	141.64
Mothers needing PMTCT	6,817	15,599	29,493
AIDS orphans	167,819	218,377	273,514

Outlook for 2020



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2020	Lower 2.50%	Median 50%	Upper 97.50%
HIV Adults + Children (All Ages)	244,617	347,605	476,371
HIV Population – Adults 15+	229,369	323,432	446,879
HIV Population – Children (0 -14)	14,960	24,173	35,227
HIV prevalence- Adults (15-49)	1.17	1.69	2.41
Number of new HIV infections (All Ages)	8,308	17,581	32,566
New HIV infections- Adults (15+)	7,073	15,425	29,080
New HIV infections- Children (0-14)	1,198	2,156	3,526
Total AIDS deaths (All Ages)	6,283	9,957	15,146
Annual AIDS deaths- Adults (15+)	4,954	7,715	11,410
Annual AIDS deaths- Children (0-14)	1,232	2,242	3,744
HIV incidence- Adults + Children (All Ages)	0.28	0.6	1.11
HIV incidence- Adults (15-49)	0.04	0.1	0.18
ART coverage of all HIV+ Adults (15+)	43.58	62.91	88.83
ART coverage of all HIV+ children (0-14)	26.92	40	65.16
Need for ART- Adults 15+ (Dec 31)	229,369	323,432	446,879
Need for ART- Children (0-14) (Dec 31)	14,448	23,699	34,259
PMTCT Coverage	41.46	85	152.52
Mothers needing PMTCT	7,723	15,832	28,409
AIDS orphans	164,279	215,608	276,166

HIV and AIDS Summary (2019 – 2025)



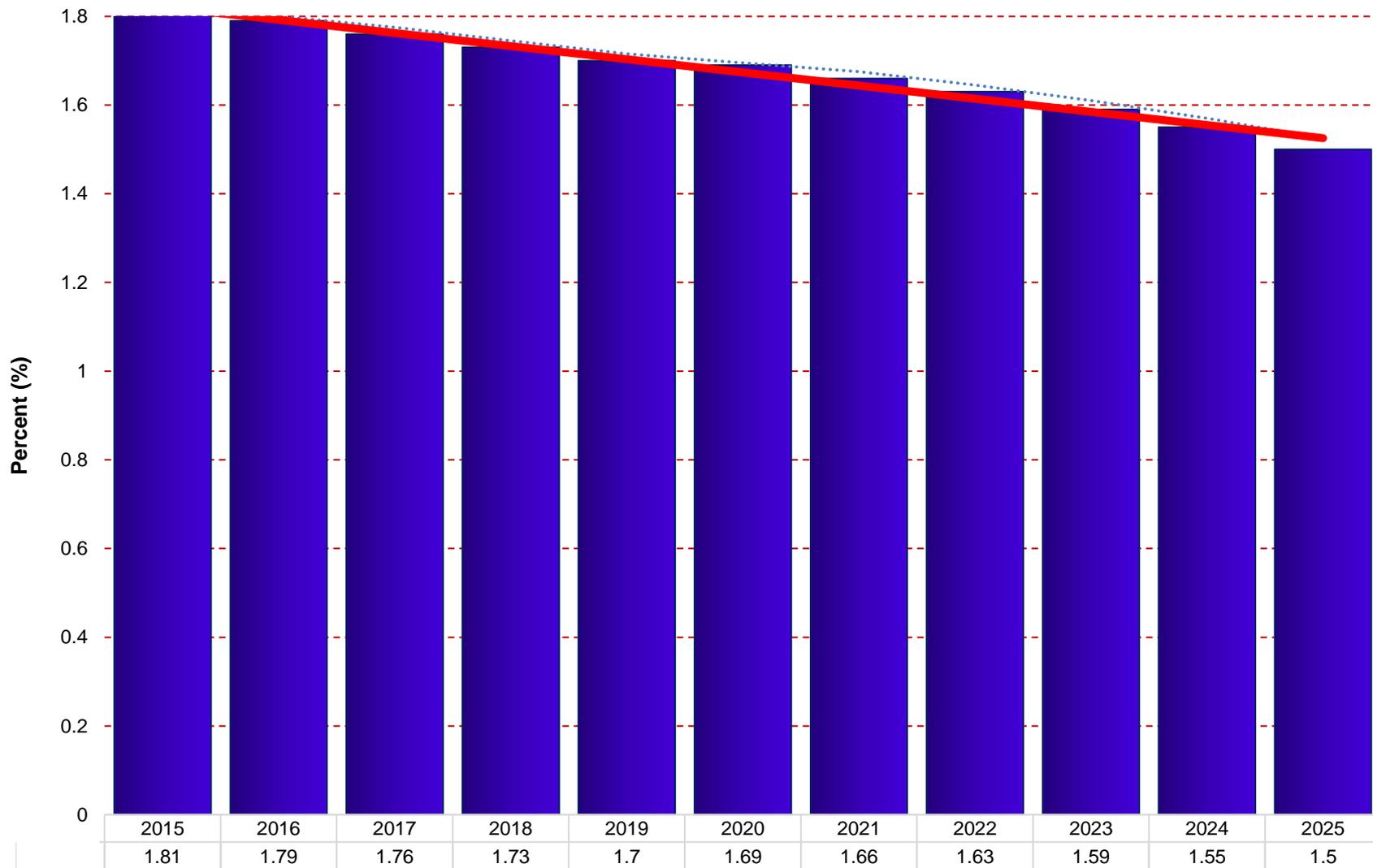
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Indicators	2019	2020	2021	2022	2023	2024	2025
HIV population							
Total	342,307	347,605	353,471	358,057	361,797	364,560	366,650
Male	122,321	123,439	125,215	126,550	127,625	128,347	128,816
Female	219,986	224,166	228,255	231,507	234,171	236,214	237,834
Prevalence (15-49)	1.70	1.69	1.66	1.63	1.59	1.55	1.50
New HIV infections							
Total	20,068	17,581	15,087	12,952	11,705	10,593	9,825
Male	8,014	6,965	5,965	5,107	4,624	4,192	3,891
Female	12,054	10,616	9,121	7,845	7,081	6,401	5,934
Annual AIDS deaths							
Total	13,616	9,957	6,783	5,819	5,312	5,081	4,895
Male	7,217	4,817	3,116	2,651	2,380	2,257	2,166
Female	6,399	5,140	3,667	3,168	2,931	2,824	2,728

Adult Prevalence (15-49)



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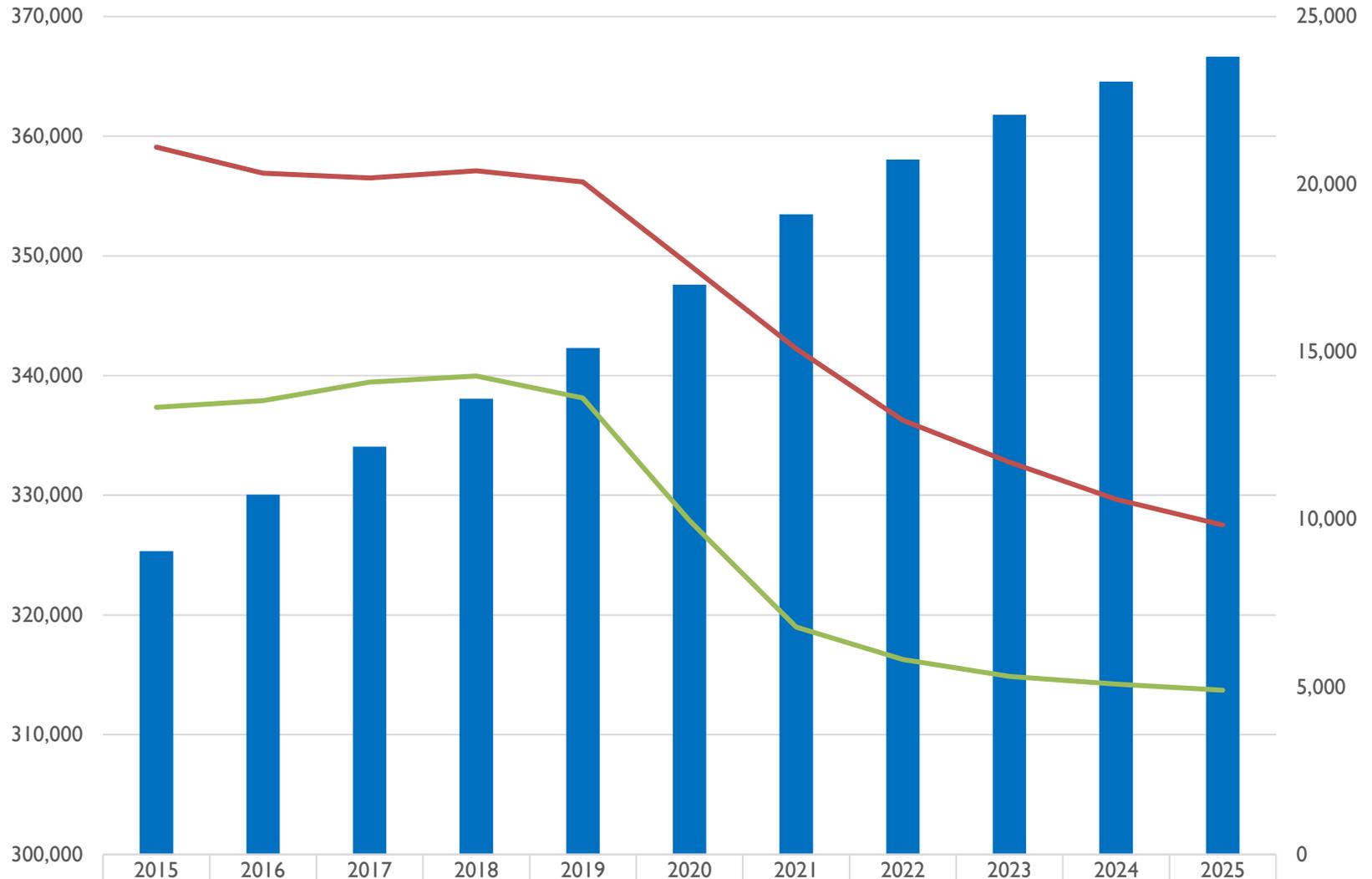


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HIV Population, New Infection and Deaths



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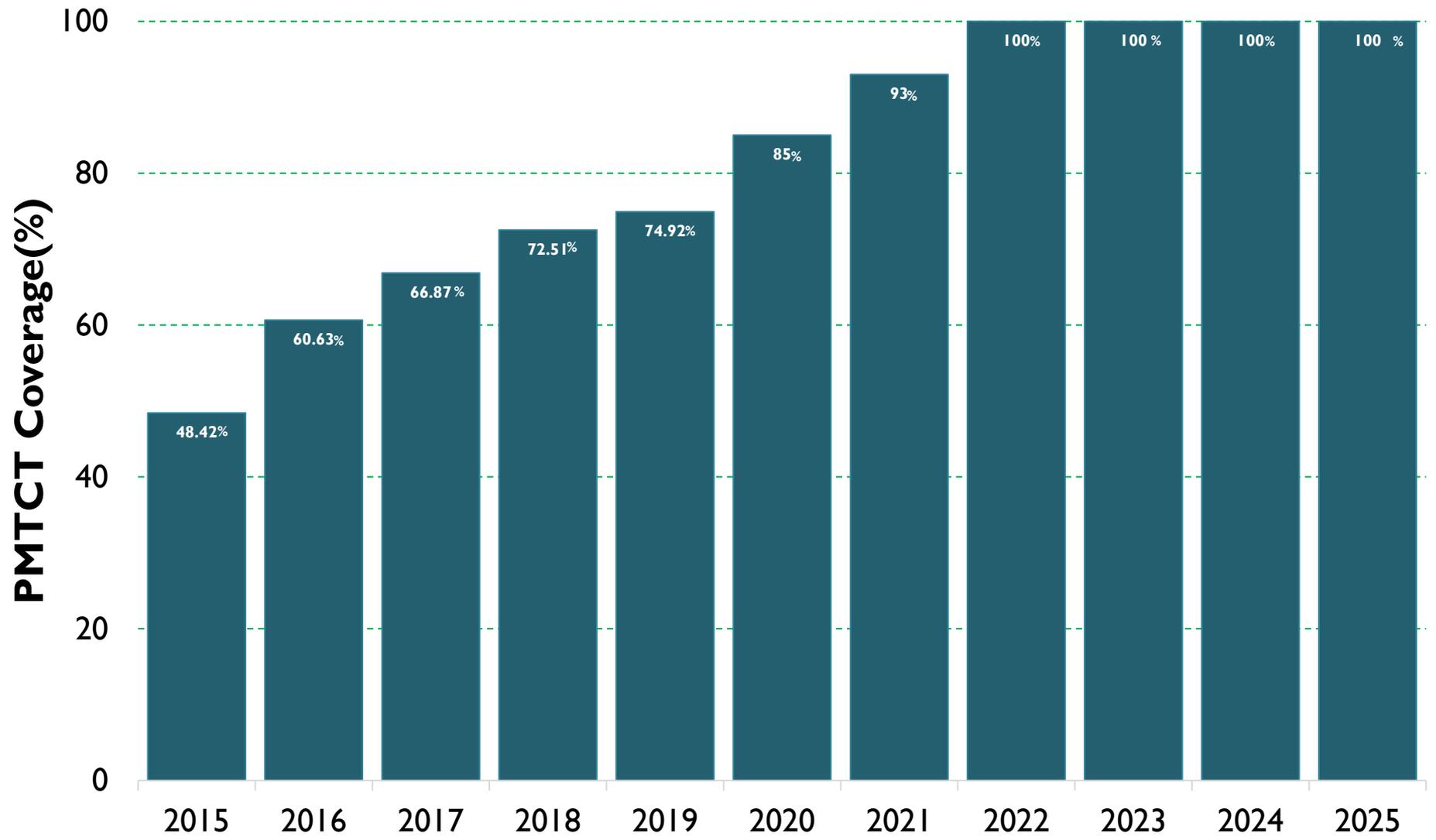
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
HIV Population	325,334	330,042	334,052	338,062	342,307	347,605	353,471	358,057	361,797	364,560	366,650
HIV New Infections	21,104	20,323	20,184	20,393	20,068	17,581	15,087	12,952	11,705	10,593	9,825
Total AIDS Death	13,340	13,534	14,088	14,275	13,616	9,957	6,783	5,819	5,312	5,081	4,895

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PMTCT Coverage of all HIV+ Adults (15+)

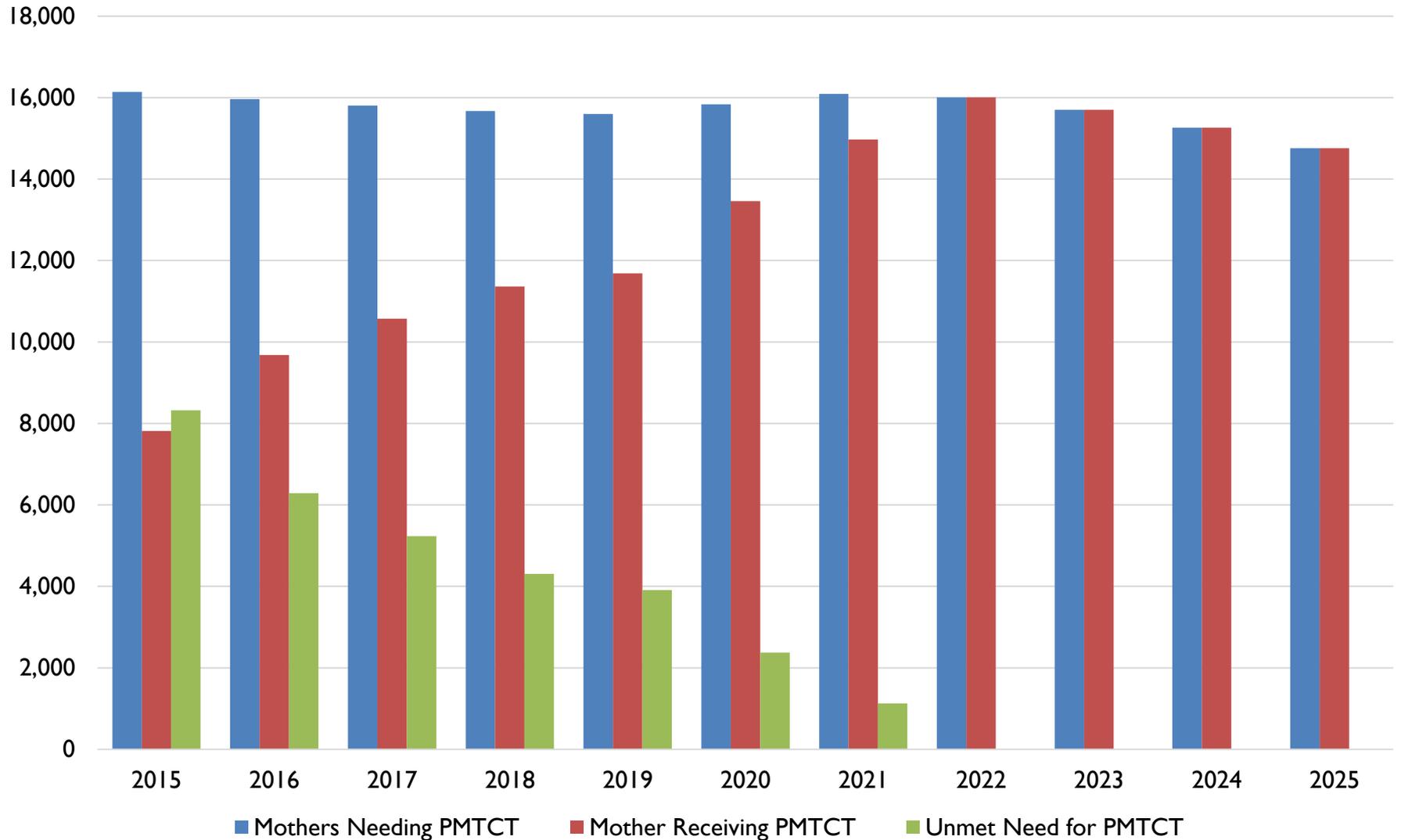


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Mothers Needing, Receiving PMTCT and Unmet Need



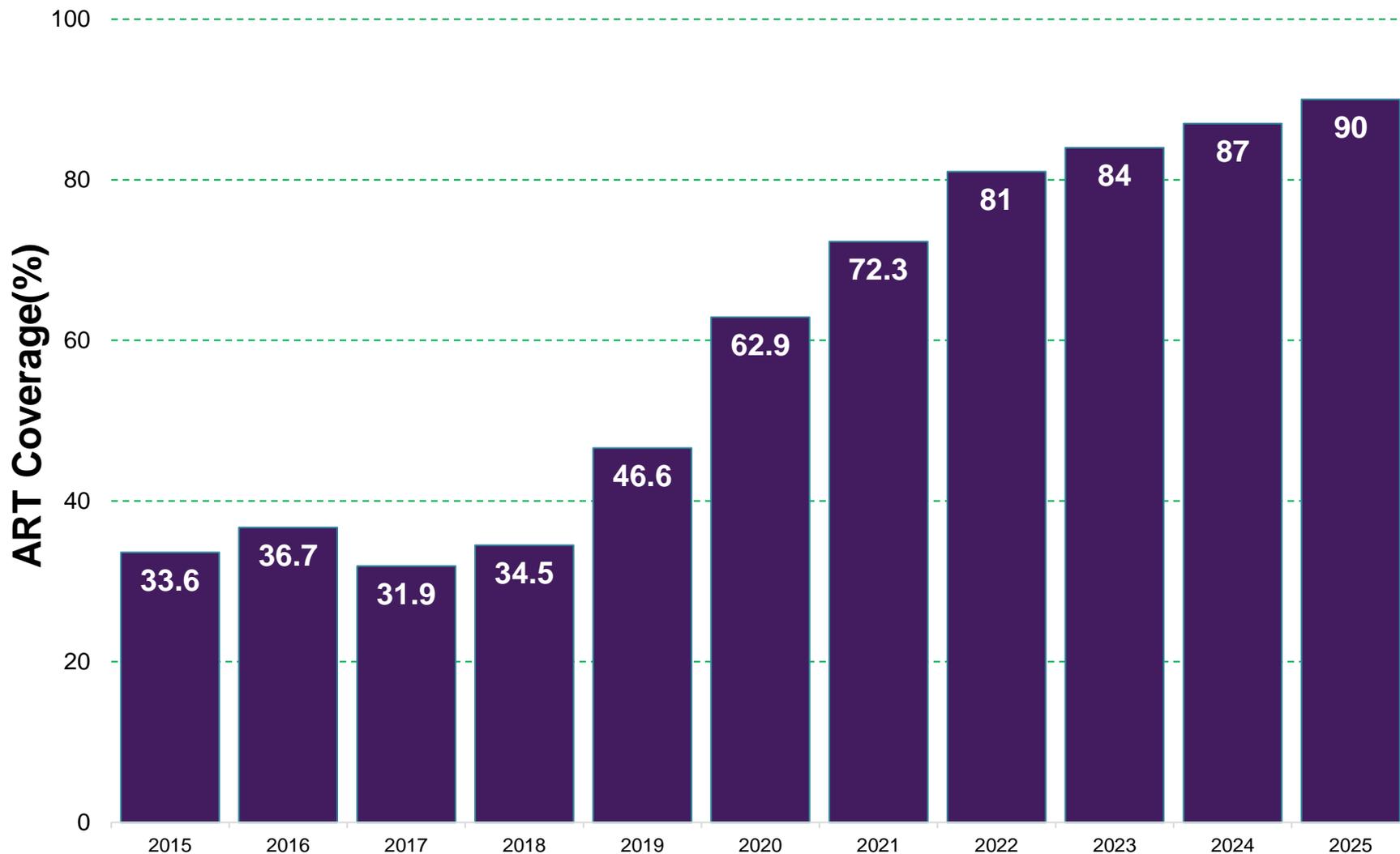
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ART Coverage of all HIV+ Adults (15+)



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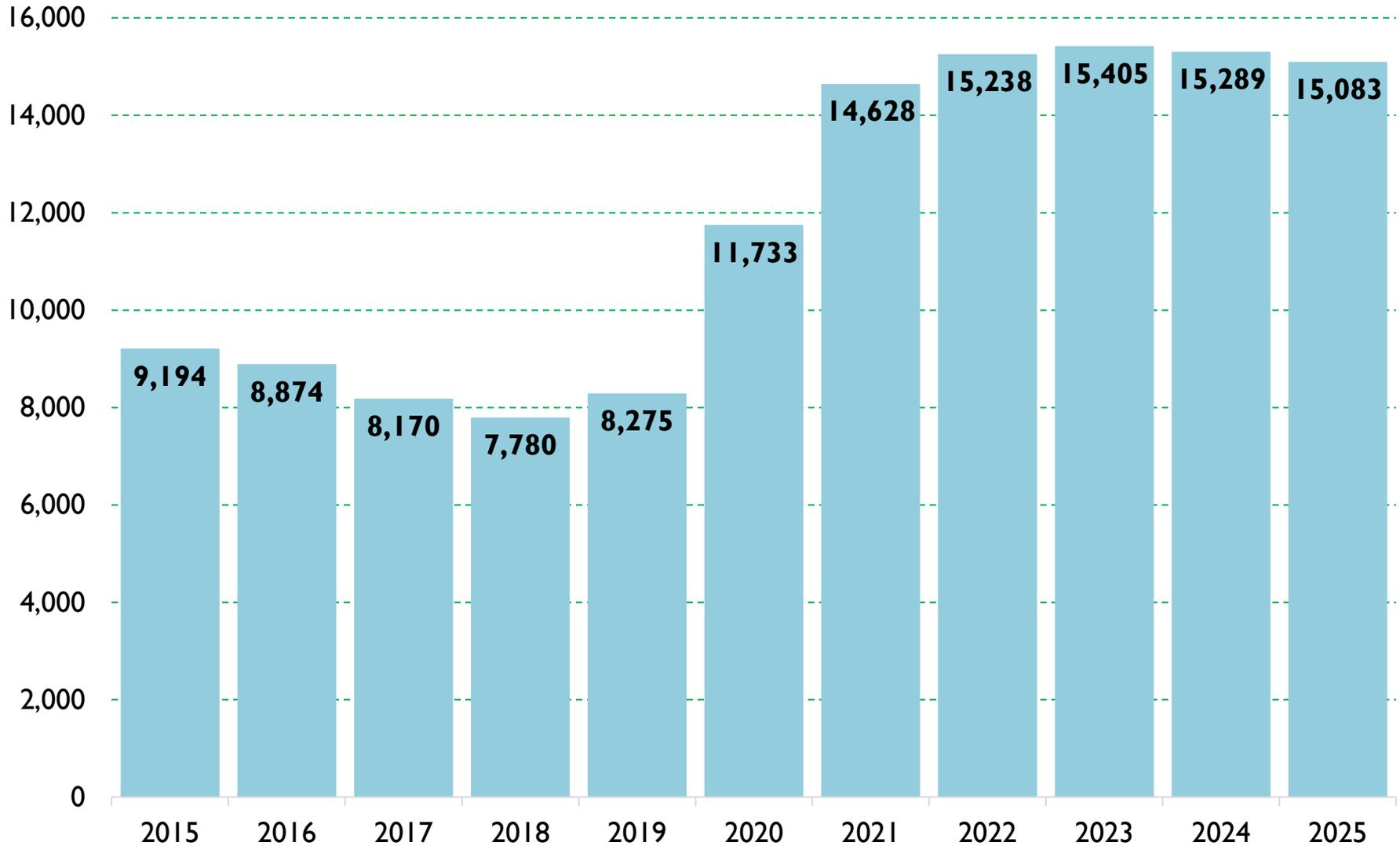


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Deaths Averted by ART



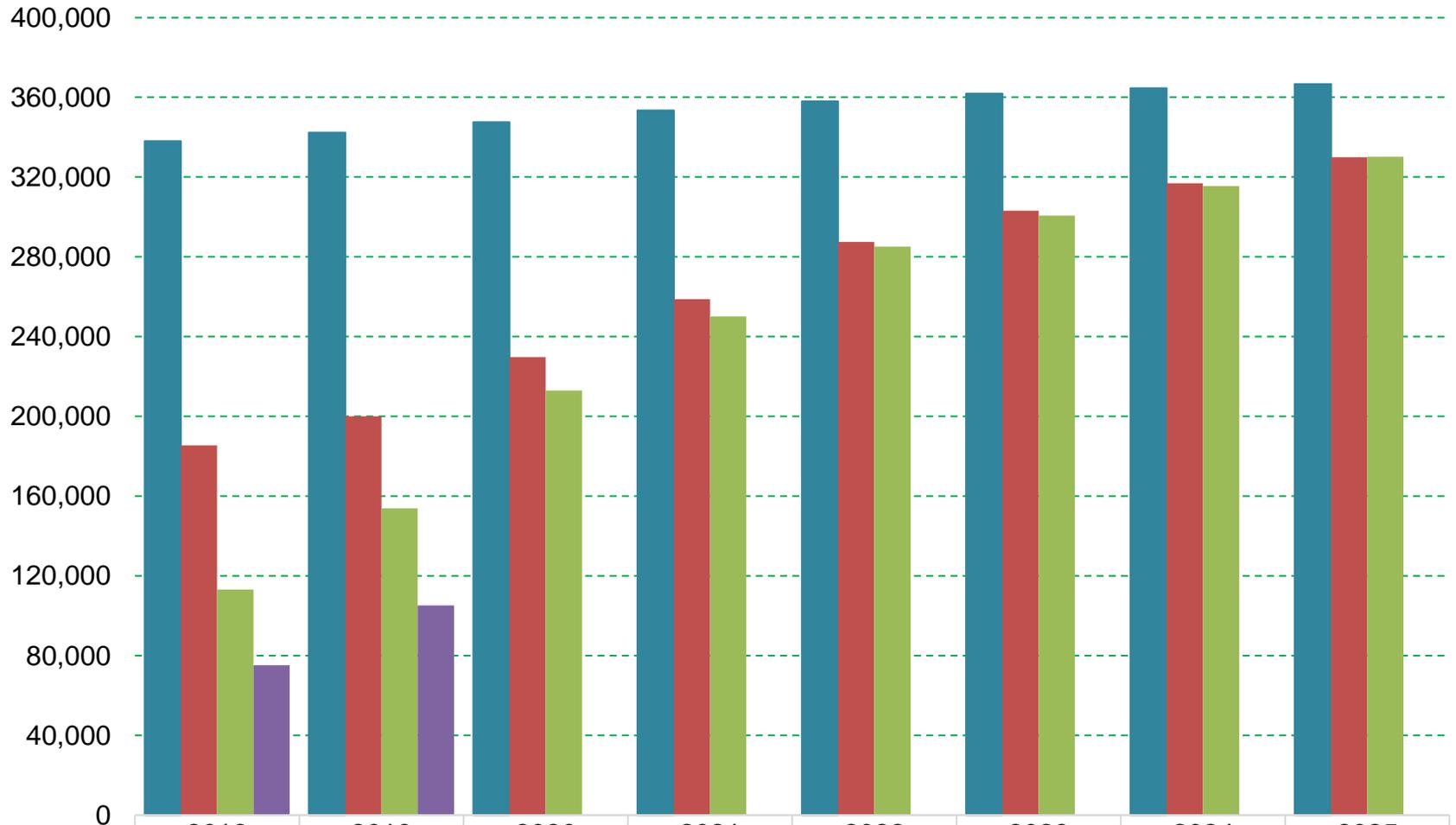
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Treatment cascade

All age groups (Numbers)



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	2018	2019	2020	2021	2022	2023	2024	2025
PLHIV	338,062	342,307	347,605	353,471	358,057	361,797	364,560	366,650
Know status	185,499	199,998	229,677	258,806	287,447	303,196	316,881	329,985
On ART	113,171	153,901	212,955	250,144	285,176	300,693	315,457	330,197
Virally suppressed	75,172	105,111	0	0	0	0	0	0

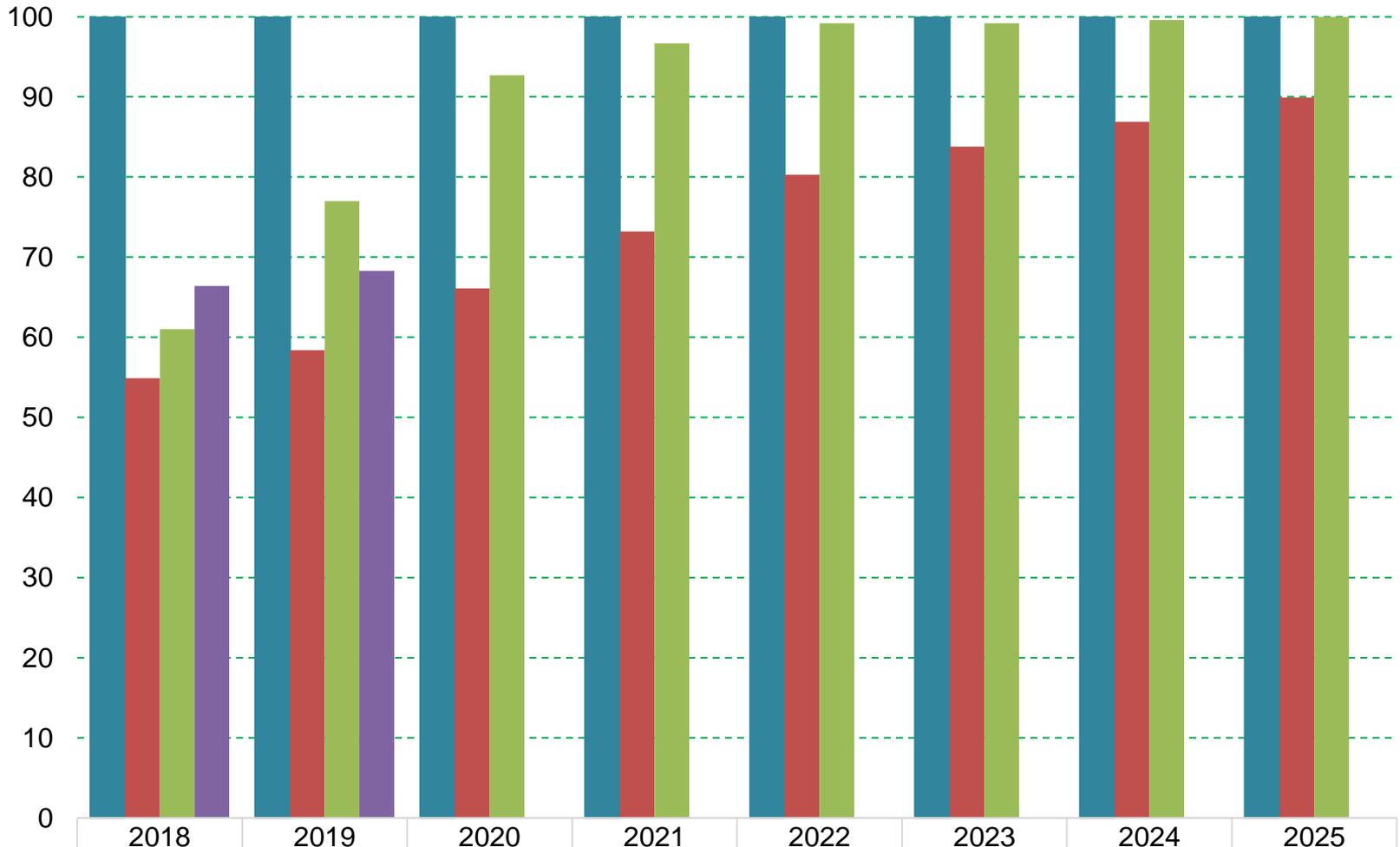
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Treatment cascade



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All age groups - % Eligible (90-90-90)



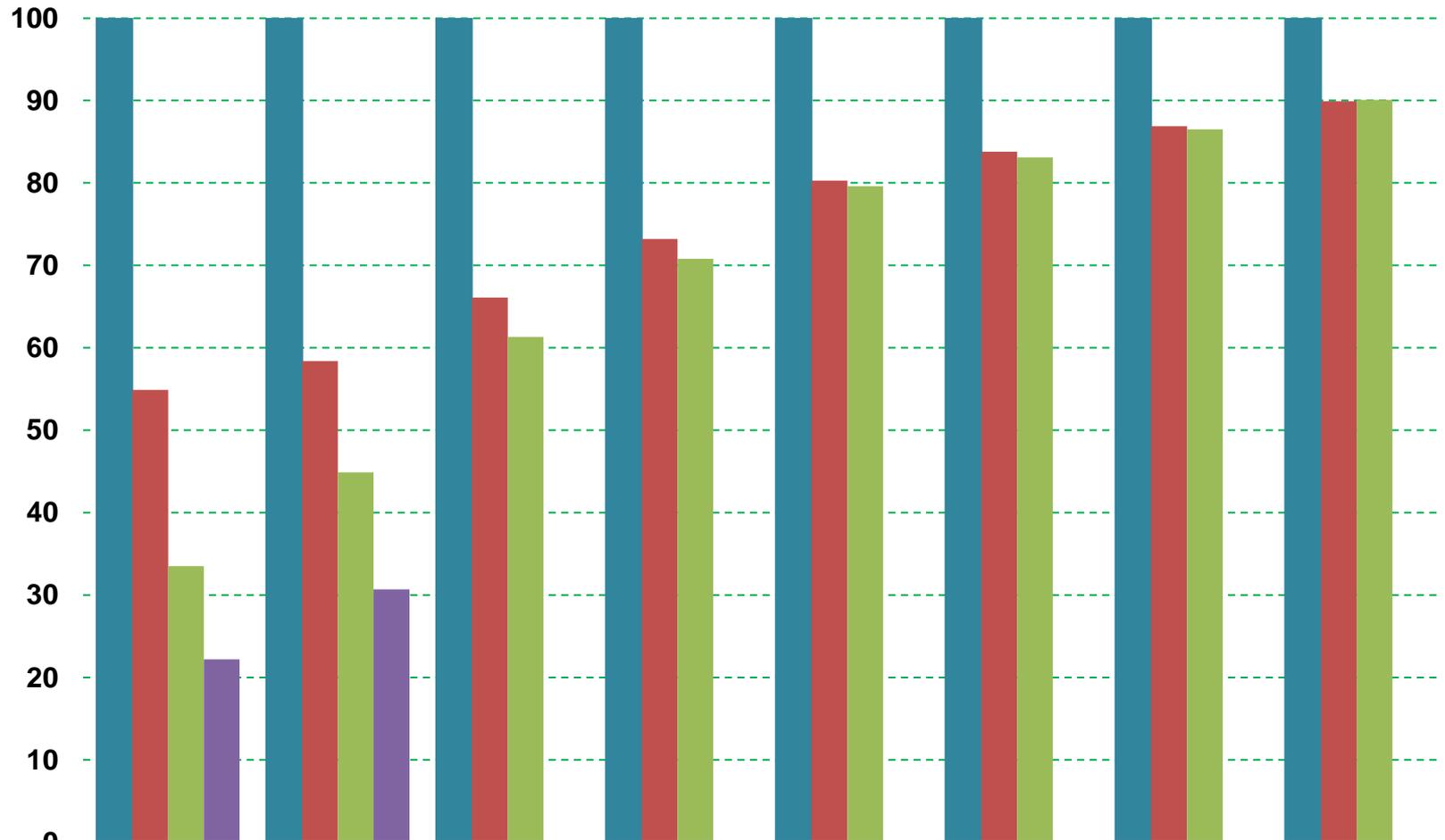
■ PLHIV	100	100	100	100	100	100	100	100
■ Know status	54.9	58.4	66.1	73.2	80.3	83.8	86.9	89.9
■ On ART	61	77	92.7	96.7	99.2	99.2	99.6	100
■ Virally suppressed	66.4	68.3	0	0	0	0	0	0

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Treatment cascade



All age groups - % of PLHIV (90-81-73) Under the Office of the President



■ PLHIV	100	100	100	100	100	100	100	100
■ Know status	54.9	58.4	66.1	73.2	80.3	83.8	86.9	89.9
■ On ART	33.5	44.9	61.3	70.8	79.6	83.1	86.5	90.1
■ Virally suppressed	22.2	30.7	0	0	0	0	0	0

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Sub-National Estimates

Generating Sub-National Estimates



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- ✚ There are 4 approaches for generating sub-national estimates
 - ✚ HIVE Model, Excel Disaggregation Tool, District Estimation Tool (Spectrum) and Naomi Districts Estimates Tool (Spectrum)

- ✚ The SPECTRUM District Estimation Tool was used for the 2019 Estimation
 - ✚ The tool provides district estimates for people living with HIV, new infections, AIDS deaths, number on ART, ART coverage and PMTCT coverage.
 - ✚ It works by disaggregating the national estimates from the Spectrum files to the districts such that the sum of the districts matches the SPECTRUM totals.
 - ✚ It receives 4 inputs by district: population 15-49, HIV prevalence among 15-49, numbers of adults and children on ART, and number of women receiving PMTCT services.

- ✚ The 2019 Sub-National Estimates covers all the 16 Regions and 260 Districts in Ghana

Data Inputs



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National HIV Estimates, 2019 (Spectrum)

-  The finalized National spectrum file which contains the HIV Estimates for 2019 was uploaded into the District Estimates Tool.

National, regional and district projected population for 2019

-  The projected National, regional and district projected population for 2019 for the 15 – 49 age group was fed into the District Estimates Tool.

2019 HIV Program Data

-  ANC prevalence by district
-  Adult ART
-  Child ART
-  PMTCT

-  *For Districts without ART Data, median ART Regional coverage data and estimated PLHIV was used to estimate the number on ART.*



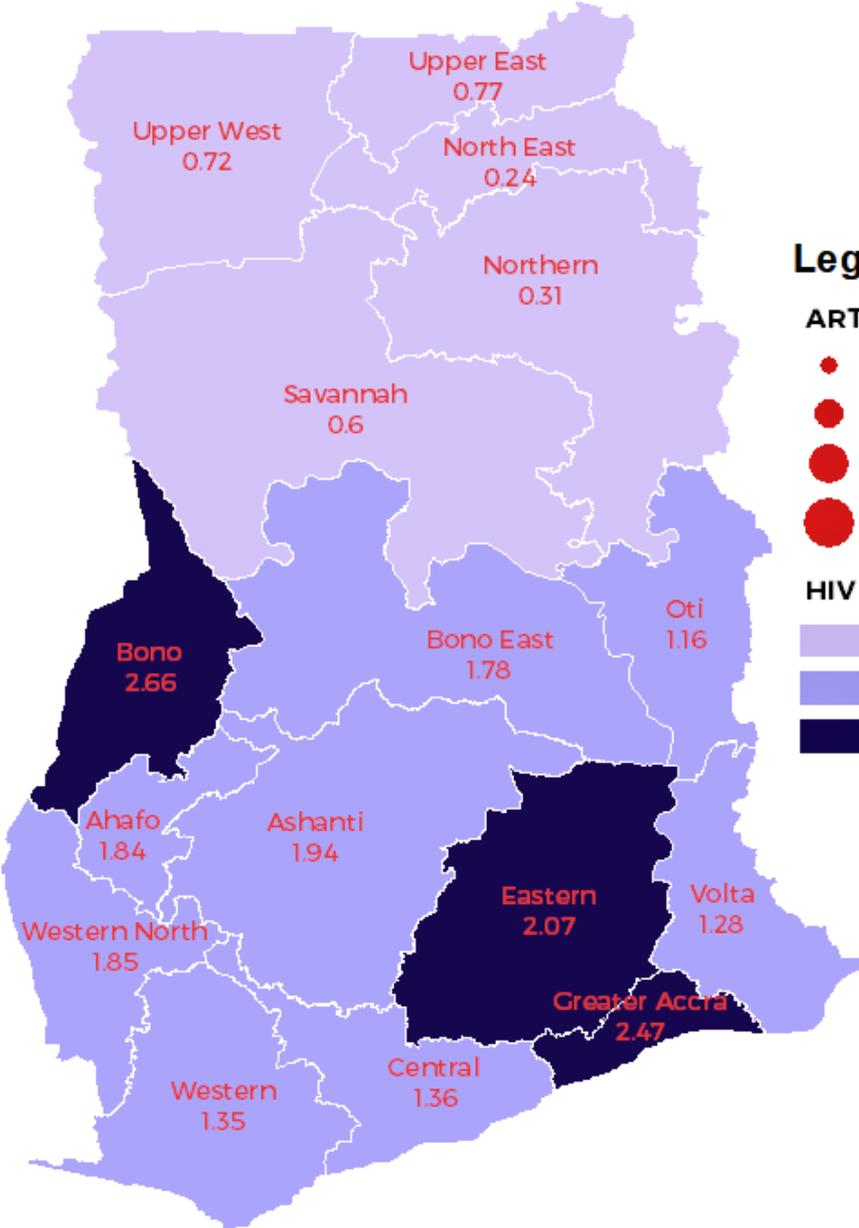
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Results

Regional HIV Prevalence & ART Coverage



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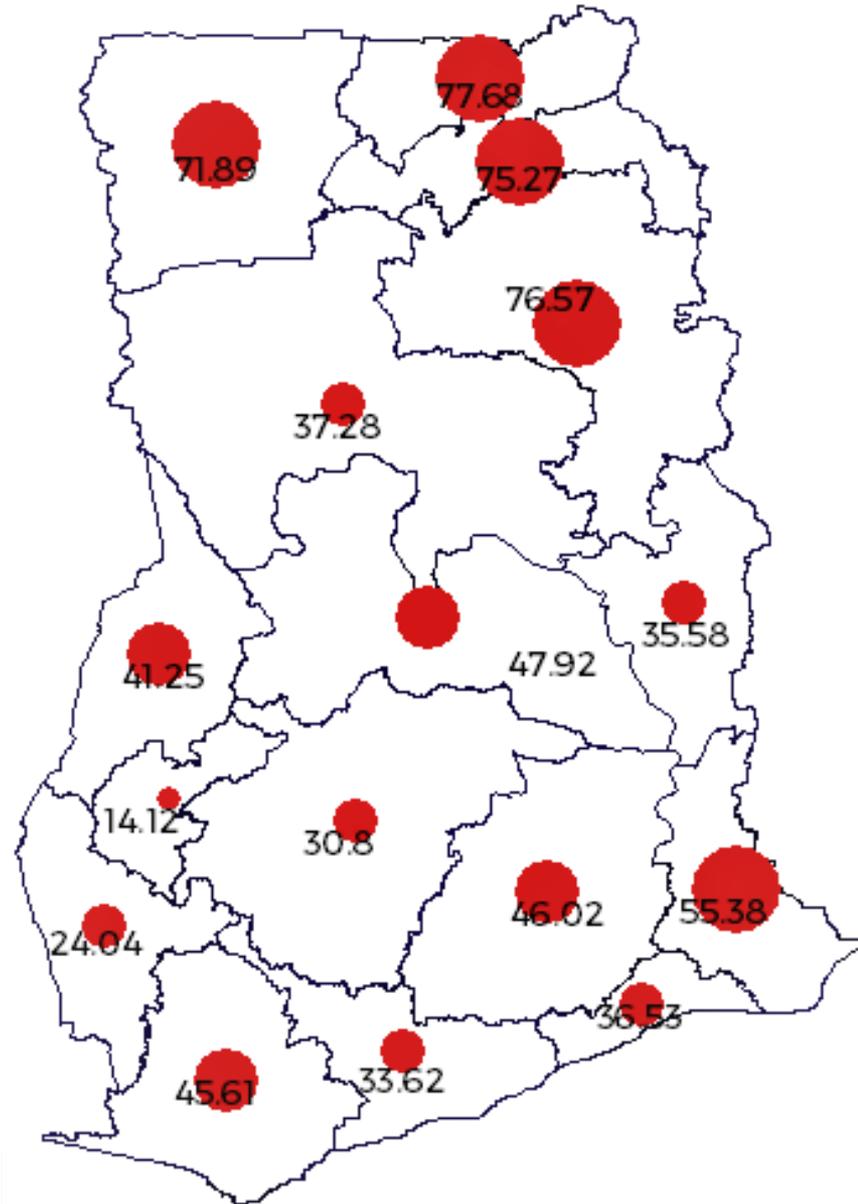
Legend

ART Coverage (%)

- 0.0 - 19.9
- 20.0 - 39.9
- 40.0 - 59.9
- 60.0 - 79.9

HIV Prevalence (%)

- 0.00 - 0.99
- 1.00 - 1.99
- 2.00 - 2.99



Regional HIV Estimates



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Indicator	Adult Prevalence % (15-49)	PLHIV (All Ages)	New Infections (All Ages)	AIDS deaths (All Ages)	Number on ART (All Ages)	ART Coverage (All Ages)
Ahafo	1.84	7,068	414	281	998	14.12
Ashanti	1.94	76,672	4,495	3,050	23,612	30.80
Bono	2.66	20,134	1,180	801	8,304	41.25
Bono East	1.78	12,521	734	498	6,001	47.92
Central	1.36	22,021	1,291	876	7,404	33.62
Eastern	2.07	42,446	2,488	1,688	19,536	46.02
Greater Accra	2.47	94,104	5,517	3,743	34,373	36.53
North East	0.24	774	45	31	583	75.27
Northern	0.31	3,697	217	147	2,831	76.57
Oti	1.16	5,216	306	207	1,856	35.58
Savannah	0.60	2,067	121	82	770	37.28
Upper East	0.77	5,776	339	230	4,487	77.68
Upper West	0.72	3,657	214	145	2,629	71.89
Volta	1.28	15,091	885	600	8,358	55.38
Western	1.35	19,731	1,157	785	9,000	45.61
Western North	1.85	11,331	664	451	2,724	24.04

District HIV Estimates



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Region	District	Adult Prevalence (%) (15-49)
Greater Accra	Okai Koi North	7.50
Greater Accra	La-Nkwantanang-Madina	6.60
Ashanti	Kwadaso	6.40
Bono	Berekum	5.95
Eastern	Lower-Manya Krobo	5.68
Eastern	Upper Manya-Krobo	4.66
Greater Accra	Ayawaso Central	4.29
Ahafo	Asutifi North	4.06
Greater Accra	La-Dade-Kotopon	3.99
Ahafo	Asutifi South	3.91
Eastern	Yilo-Krobo	3.69
Eastern	Kwaebibirem	3.64
Ashanti	Amansie West	3.57
Bono	Dormaa East	3.26
Eastern	Asuogyaman	3.21
Bono	Berekum West	3.19
Greater Accra	Ga East	3.14
Ashanti	Suame	3.00
Eastern	Okere	2.91
Greater Accra	Ada East	2.90

Top 20 Districts with the Highest HIV prevalence

in partnership towards
of HIV & AIDS

District HIV Estimates Cont'd



Region	District	PLHIV (All Ages)
Greater Accra	Ayawaso Central	23,075
Ashanti	Kumasi	13,672
Greater Accra	Okai Koi North	12,532
Ashanti	Kwadaso	9,495
Greater Accra	La-Nkwantanang-Madina	5,982
Ashanti	Asokore Mampong	5,932
Greater Accra	La-Dade-Kotopon	5,924
Greater Accra	Accra Metro	5,710
Greater Accra	Ga South	4,725
Bono	Berekum	4,450
Eastern	Lower-Manya Krobo	3,971
Ashanti	Asokwa	3,789
Greater Accra	Ga East	3,775
Ashanti	Oforikrom	3,519
Greater Accra	Ashaiman	3,437
Ashanti	Suame	3,306
Western	Sekondi-Takoradi	3,279
Eastern	Kwaebibirem	3,222
Greater Accra	Tema	3,011

Top 20 districts with the Highest PLHIV population

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District HIV Estimates Cont'd



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Region	District	New Infections (All Ages)
Greater Accra	Ayawaso Central	1,353
Ashanti	Kumasi	801
Greater Accra	Okai Koi North	735
Ashanti	Kwadaso	557
Greater Accra	La-Nkwantanang-Madina	351
Ashanti	Asokore Mampong	348
Greater Accra	La-Dade-Kotopon	347
Greater Accra	Accra Metro	335
Greater Accra	Ga South	277
Bono	Berekum	261
Eastern	Lower-Manya Krobo	233
Ashanti	Asokwa	222
Greater Accra	Ga East	221
Ashanti	Oforikrom	206
Greater Accra	Ashaiman	202
Ashanti	Suame	194
Western	Sekondi-Takoradi	192
Eastern	Kwaebibirem	189
Greater Accra	Tema	176

Top 20 Districts with the Highest New Infections

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District HIV Estimates Cont'd



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Region	District	AIDS deaths (All Ages)
Greater Accra	Ayawaso Central	918
Ashanti	Kumasi	544
Greater Accra	Okai Koi North	498
Ashanti	Kwadaso	378
Greater Accra	La-Nkwantanang-Madina	238
Ashanti	Asokore Mampong	236
Greater Accra	La-Dade-Kotopon	236
Greater Accra	Accra Metro	227
Greater Accra	Ga South	188
Bono	Berekum	177
Eastern	Lower-Manya Krobo	158
Ashanti	Asokwa	151
Greater Accra	Ga East	150
Ashanti	Oforikrom	140
Greater Accra	Ashaiman	137
Ashanti	Suame	131
Western	Sekondi-Takoradi	130
Eastern	Kwaebibirem	128
Greater Accra	Tema	120
Bono East	Techiman Municipal	107

Top 20 districts with the Highest AIDS Deaths

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Way Forward

Printing and Publication

 July 2020

Dissemination

 National – July 2020

 Regional and District – August 2020

Acknowledgment



Under the Office of the President

 Ghana AIDS Commission

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 UNAIDS

 CDC

 JSI

THANK YOU



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