AUSTRALIAN HIV OBSERVATIONAL DATABASE (AHOD) ANNUAL REPORT

(Volume 20, Number 1: December 2020)

Clinical characteristics of overseas-born men who have sex with men (MSM) in the AHOD cohort and implications for clinical practice

In Australia HIV notifications are increasing among overseas-born men who have sex with men (MSM), particularly among Asian-born MSM. Australian evidence suggests that culturally and/or linguistically diverse populations are less likely to start treatment early irrespective of CD4 cell count at diagnosis, but little is known about response once in care. Using data from AHOD, Jolie L Hutchinson and colleagues (2020) compared treatment response in overseas-born MSM from non-English-speaking countries with Australian-born MSM, further categorised based on participation in the Australian Temporary Residents Access Study (ATRAS) which provide temporary residents ineligible for Medicare, access to HIV treatment. ATRAS patients were chosen as the closest surrogate to identifying newly arrived overseas-born MSM.

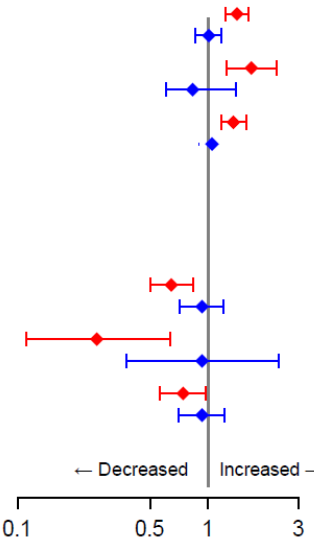
The authors explored the time to first virological suppression (VS) (viral load (VL) <400 copies/mL) and time to virological failure (VF) (>400 copies/mL after suppression). CD4 cell counts and VL measurements were taken at treatment initiation. Adjusted Hazard Ratios (HR) are reported with 95% CI.

Results, as shown in figure 1, indicate that overseas-born MSM did not differ significantly in the rate of VS or in the rate of first VF after suppression. This result is different from findings in other settings, and differences may, in part, be explained by the nature of healthcare provision. In Australia, all residents can access ART for free or with a small co-payment; those ineligible for Medicare can get pharmaceutical company-provided ART which is not necessarily straightforward for non-English speakers.

Newly arrived overseas-born MSM are most likely to experience a delayed diagnosis. Once treatment access has been ensured however, overseas-born MSM have similar treatment response to Australian-born MSM. As highlight by the authors, ensuring early engagement and access to treatment for overseas-born people with HIV remains a priority. Complete details can be found in the source article.[1]

1.Hutchinson JL, Lewis DA, Law M, Bavinton BR, Puhr R, Petoumenos K. Clinical characteristics of overseas-born men who have sex with men (MSM) in the AHOD cohort and implications for clinical practice. 2020; 96(6): 469-70.

	Number of patients	HR (95% CI) unadjusted	HR (95% CI) adjusted	HR (95% CI) unadjusted (red) adjusted (blue)	p-value unadjusted	p-value adjusted
Virological Suppression						
OS-born status	240	1.42 (1.23 to 1.64)	1.01 (0.86 to 1.17)		<0.001	0.94
OS-born ATRAS	44	1.69 (1.25 to 2.29)	0.83 (0.60 to 1.41)		0.001	0.25
OS-born Non-ATRAS	196	1.36 (1.17 to 1.60)	1.05 (0.89 to 1.23)		<0.001	0.57
AUS-born	1137	Ref	Ref			
Virological Failure						
OS-born status	236	0.64 (0.50 to 0.84)	0.93 (0.71 to 1.21)		0.001	0.58
OS-born ATRAS	44	0.26 (0.11 to 0.63)	0.93 (0.37 to 2.35)		0.003	0.87
OS-born Non-ATRAS	192	0.74 (0.56 to 0.97)	0.93 (0.70 to 1.22)		0.028	0.37
AUS-born	1108	Ref	Ref			



*Multivariable models adjusted for OS (Overseas) born status, site type (General Practitioner, tertiary referral centre, sexual health clinic), period of antiretroviral initiation (<1997, 1997–2007, 2008+), Hepatitis B/C coinfection, CD4 cell count (cells/mm^3), Viral load (copies/mL) and age at treatment initiation. #n=1344 for VF model.

Figure 1: Univariable and multivariable HR for time to VS and time to first VF after suppression (1377 subjects)

Recruitment and loss to follow up

In 2020, 24 sites in Australia, and 2 sites in New Zealand provided data for the period between 1st April 2019 and 30th March 2020. Two sites (242 patients) in Australia were unable to provide data for this year. In total, 4632 patients had been recruited between 01 Jan 1999 and 31st March 2020 (4624 patients up until the 31st December 2019), and of these, 2360 are being actively followed up as of the 31st March 2020.

The largest recruitment numbers occurred between the years 1999 and 2000, with 322 patients or 14% of those recruited in 1999 and 329 patients or 14% of those recruited in 2000 still remaining in the cohort as of the 31st December 2019 (Figure 2).

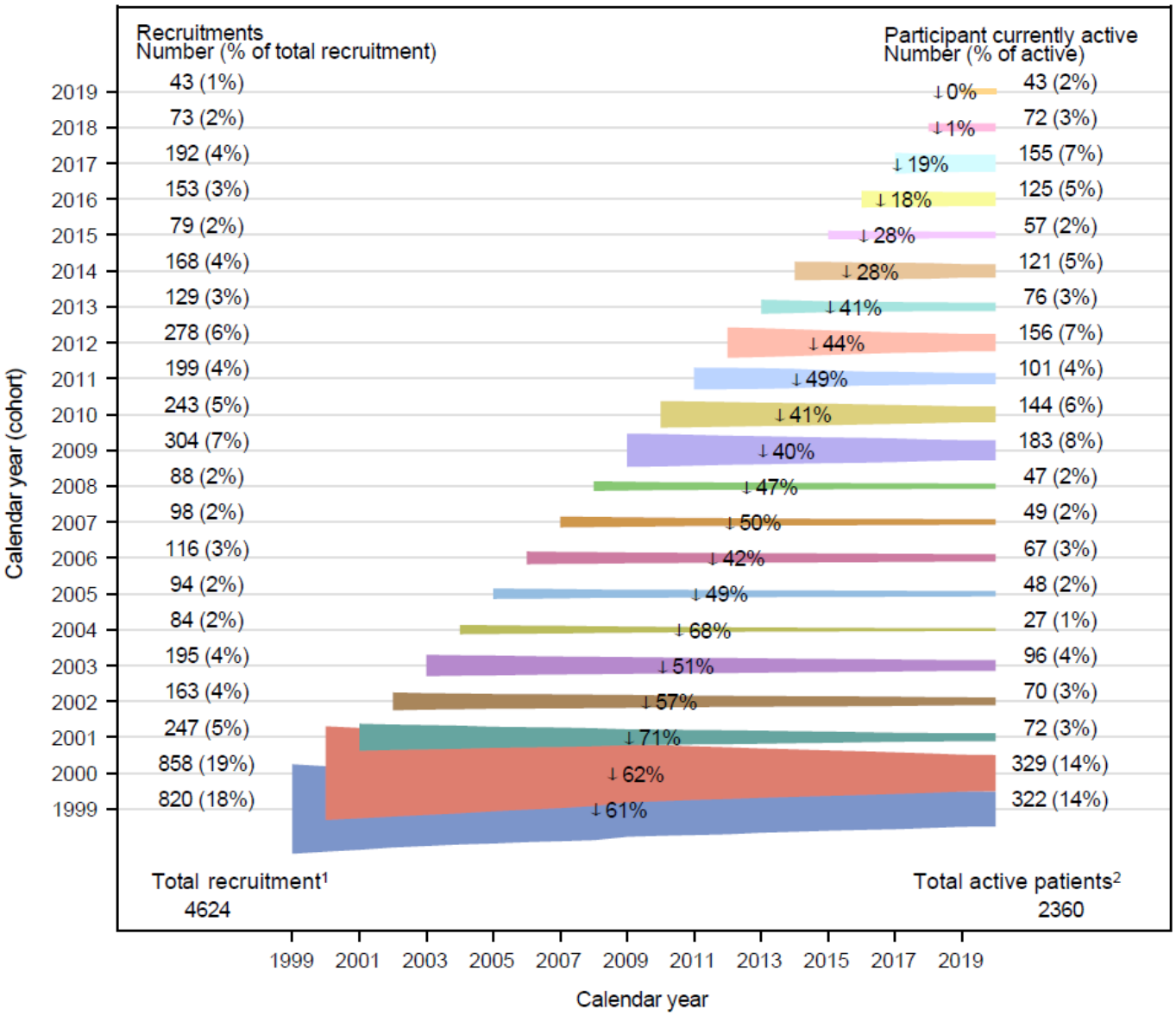
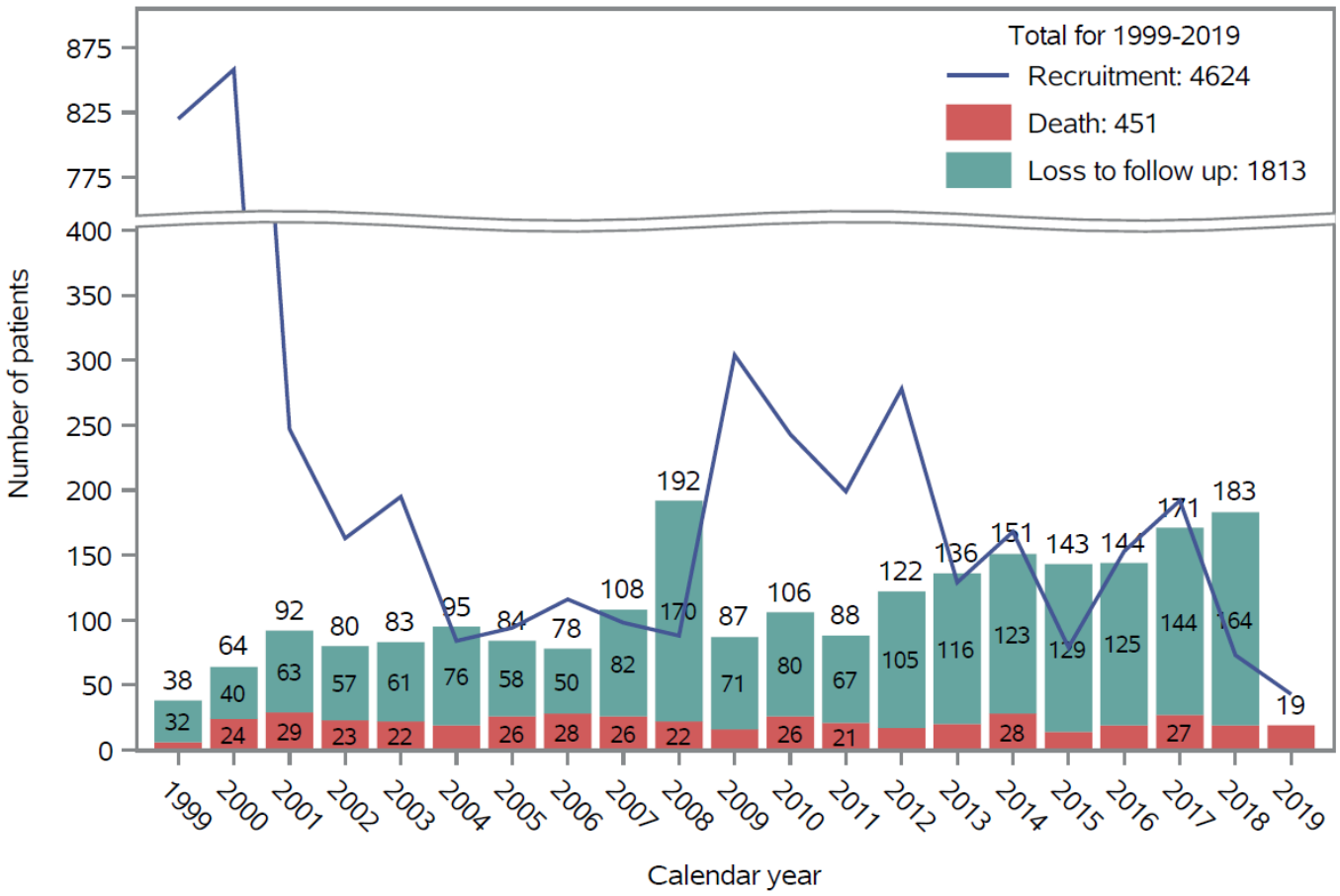


Figure 2: Recruitment and loss to follow up/death by calendar year

1. Total number recruited between 1999 and 2019.
2. Active patients as of 31st April 2020 by calendar year.

Left column: total Number recruited, and percentage of total recruited by calendar year between 1999 and 2019.
Right column: Active patients and percentage of total active patients as of 31st April 2020 by calendar year.
Number in the middle of each bar represents percentage attrition due to deaths and loss to follow up.
Active patients are defined as having had a visit between the dates 01 January 2019 and 31st March 2020.

There were 40 new patients recruited into AHOD during the 2019 calendar year with 19 deaths (Figure 3). Lost to follow up is defined as a patient who has indicated they will no longer be attending a study clinic or has not had a visit to a study clinic within the required amount of time (between the dates 01 January 2019 and 31st March 2020). Patients who were still being actively followed up by a clinic that has since withdrawn from the study, or patients who have died are not considered lost to follow up.



Complete follow-up (percentage of patients): 60.9%
Loss to follow-up (per 100 person years): 4.49 (95% CI: 4.29-4.70)
Mortality (per 100 person years): 1.13 (95% CI: 1.03-1.24)

Figure 3: Follow up status by calendar year[1]
1. Four sites (309 patients) were censored 31st March 2006, 31st March 2008, 31st March 2013, and 31st March 2015 respectively. Two sites (242 patients) were censored 31st March 2018 as they were unable to provide data for the period 1 April 2019 and 31st March 2020.
2. Patients who have died or any patients seen at clinic site within the last 12 months (1st January 2019 – 31st March 2020) are considered to have completed follow-up.

Demographics

Table 1: All AHOD demographics[1] (Total – 4632 as of 01 April 2020)

	Number *(%)*		Number *(%)*
Sex		**CD4 at enrolment (cells/µl)[1]**	
Male	4201 (90.7)	<200	423 (9.3)
Female	421 (9.1)	200-299	429 (9.4)
Transgender	10 (0.2)	300-499	1293 (28.4)
		500+	2115 (46.4)
Age at enrollment (Years)		Missing	299 (6.6)
<20	12 (0.3)	Mean [SD]	531.3 [286.1]
20-29	508 (11.0)		
30-39	1625 (35.1)	**HIV viral load at enrolment (copies/ml)[1]**	
40-49	1457 (31.5)	<=50	2013 (44.2)
50+	1030 (22.2)	51-400	786 (17.2)
Mean [SD]	41.8 [10.8]	401-10000	666 (14.6)
		>10000	856 (18.8)
Aboriginal and Torres Straight Islander		Missing	238 (5.2)
Yes	76 (1.6)	Median [LQ - UQ]	110 [49 - 4200]
No	3411 (73.6)		
Missing	1145 (24.7)	**Prior AIDS defining illness[1]**	
		Yes	759 (16.4)
Exposure Category		No	3873 (83.6)
Male homosexual contact	3256 (70.3)		
Male homosexual contact and IDU	185 (4.0)	**Hepatitis B ever**	
Injecting drug user (IDU)	109 (2.4)	Yes	187 (4.0)
Heterosexual contact	820 (17.7)	No	3621 (78.2)
Receipt of blood/blood products	34 (0.7)	No Test	824 (17.8)
Other	120 (2.6)		
Missing	108 (2.3)	**Hepatitis C ever**	
		Yes	468 (10.1)
Year of HIV diagnosis		No	3604 (77.8)
<1990	799 (17.2)	No Test	560 (12.1)
1990-1999	1649 (35.6)		
2000-2009	1137 (24.5)	Total patients under active follow up in 12 months (N=2301)[4]	
2010-2019	695 (15.0)		
2020	2 (0.0)		
Missing	350 (7.6)	**Recent CD4 (cells/µl)[5]**	
		<200	71 (3.1)
Patient care setting		200-299	61 (2.7)
General Practitioner	1554 (33.5)	300-499	256 (11.1)
Hospital Tertiary Centre	989 (21.3)	500+	1142 (49.7)
Sexual Health Clinic	2090 (45.1)	Missing	768 (33.4)
		Mean [SD]	707.1 [338.4]
Region of birth			
Australia and New Zealand	2597 (56.1)	**Recent HIV viral load (copies/ml)[5]**	
Asia and Oceania	414 (8.9)	<=50	1467 (63.9)
Britain and Ireland	179 (3.9)	51-400	91 (4.0)
Europe (except Britain and Ireland)	132 (2.8)	401-10000	17 (0.7)
Africa and Middle East	167 (3.6)	>10000	18 (0.8)
North America	50 (1.1)	Missing	704 (30.6)
South and Central America	63 (1.4)	Median [LQ - UQ]	20 [19 - 40]
Missing	1030 (22.2)		

1. CD4 count and HIV viral load closest to and within 3 months of cohort enrolment date.
2. Year of HIV diagnosis is based on the earliest blood test consistent with a positive HIV status.
3. LQ = Lower quartile UQ = Upper quartile.
4. Patients who had the most recent visit between 1 January 2019 and 31 March 2020 and have not died. NB two sites (242 patients) did not provide data for 2019 so are censored to 31 March 2019. 5. Most recent CD4 count and HIV viral load between 1 April 2019 and 31 March 2020.

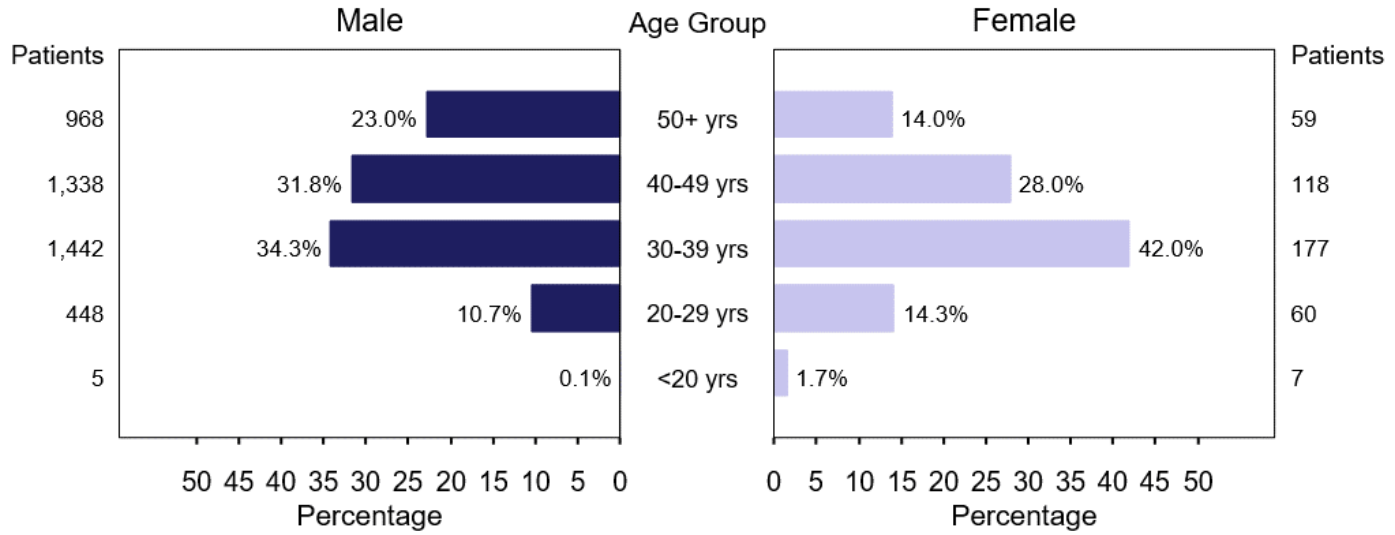


Figure 4: Age distribution of all AHOD patients, grouped by sex. Ten (0.2%) patients are identified as transgender.

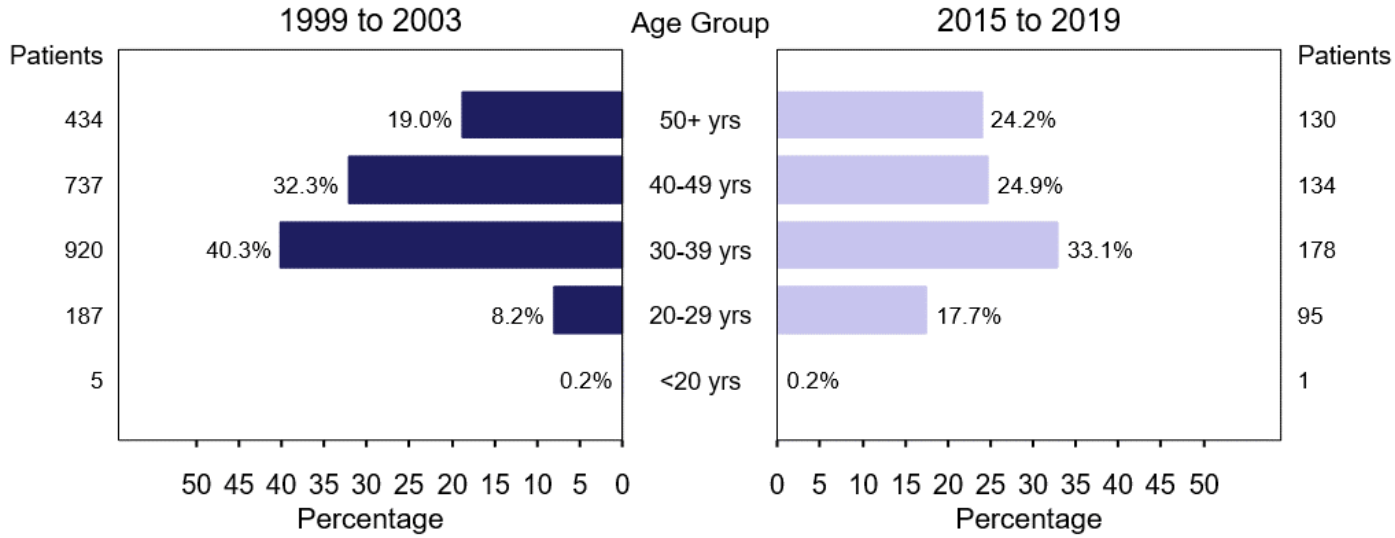


Figure 5: Age at enrolment 1999-2003 and 2015-2019

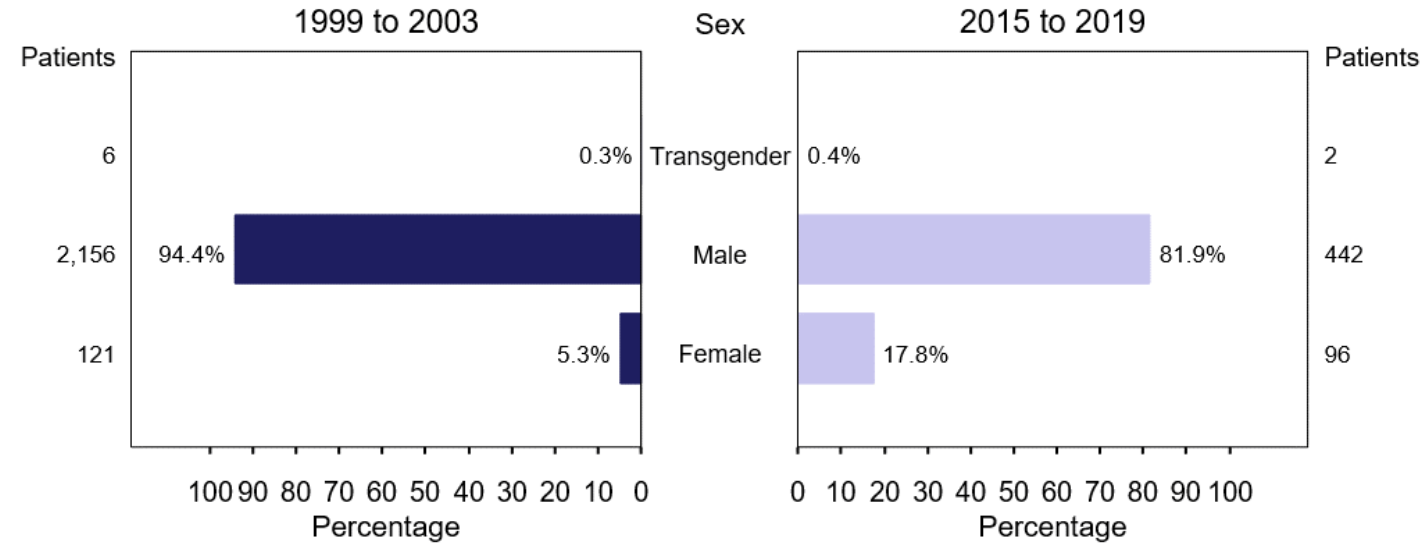


Figure 6: Gender at enrolment 1999-2003 and 2015-2019

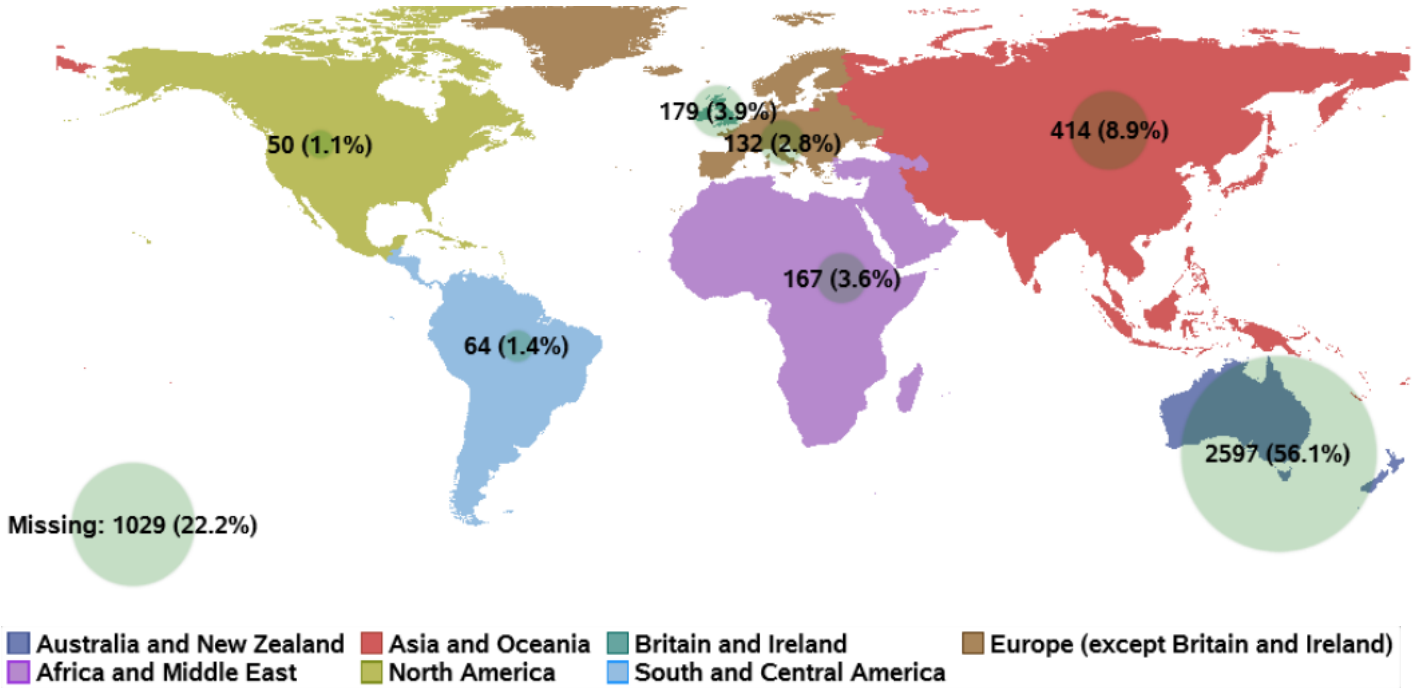


Figure 7: Map of region of birth of patients

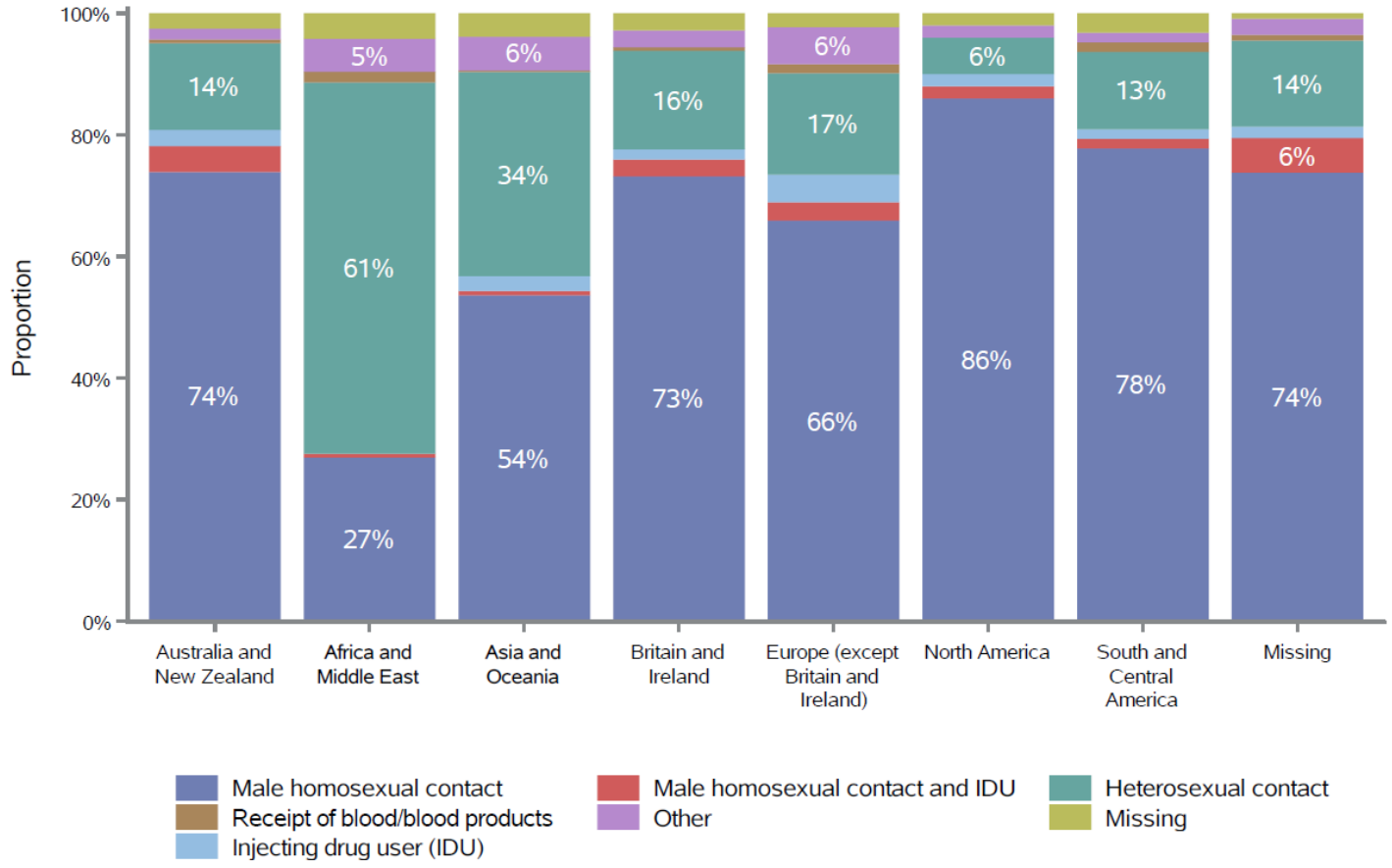


Figure 8: HIV risk factors by region of birth for all AHOD patients

Table 2: Hep B and Hep C status[1] by region of birth

	Hep B Surface Antigen[2] %			Hep C Antibody[2] %		
Region	**Positive**	**Negative**	**Missing**	**Positive**	**Negative**	**Missing**
Australia and New Zealand	3.5	78.8	17.6	10.5	77.1	12.4
Africa and Middle East	4.2	81.4	14.4	1.2	85.0	13.8
Asia and Oceania	6.5	71.3	22.2	6.0	80.0	14.0
Britain and Ireland	5.0	81.6	13.4	8.4	83.8	7.8
Europe (except Britain and Ireland)	1.5	81.1	17.4	13.6	73.5	12.9
North America	2.0	72.0	26.0	8.0	80.0	12.0
South and Central America	3.2	73.0	23.8	3.2	82.5	14.3
Missing	4.6	78.4	17.0	12.6	76.7	10.7

1. Hep B and C status is the latest available and can represent infection before or after enrolment.
2. All numbers are percentages

Death

Deaths are reported by AHOD sites using Coding of Death classification (CoDe) forms. Deaths classified as 'No CoDe form' were notified by a site without a completed CoDe form. Deaths are classified as 'Unknown' when a site has been unable to determine the cause of death based on available information.

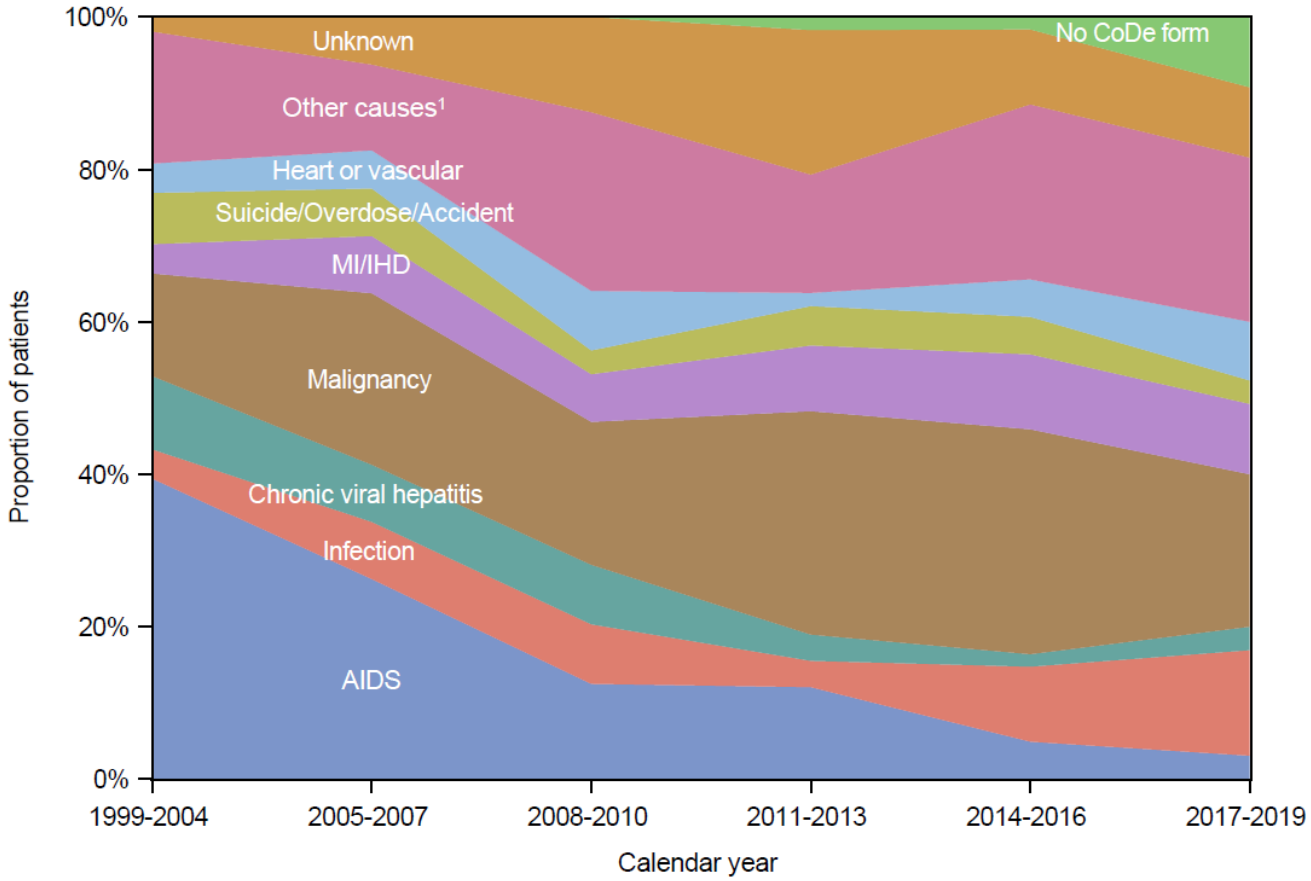


Figure 9: Distribution of cause of death by year

1. A list of 'Other causes' and their frequency can be found in Table 3.

Table 3: Other causes of death 1999-2019

Other cause of death	Number of deaths
Liver failure	11
Substance abuse	10
Renal failure	10
Stroke	9
CNS disease	8
Chronic obstructive lung disease	5
Respiratory disease	5
Accident or other violent death	5
Digestive system disease	3
Unclassifiable causes	2
Gastro-intestinal haemorrhage	2
Lactic acidosis	2
Diabetes Mellitus	1
Lung embolus	1

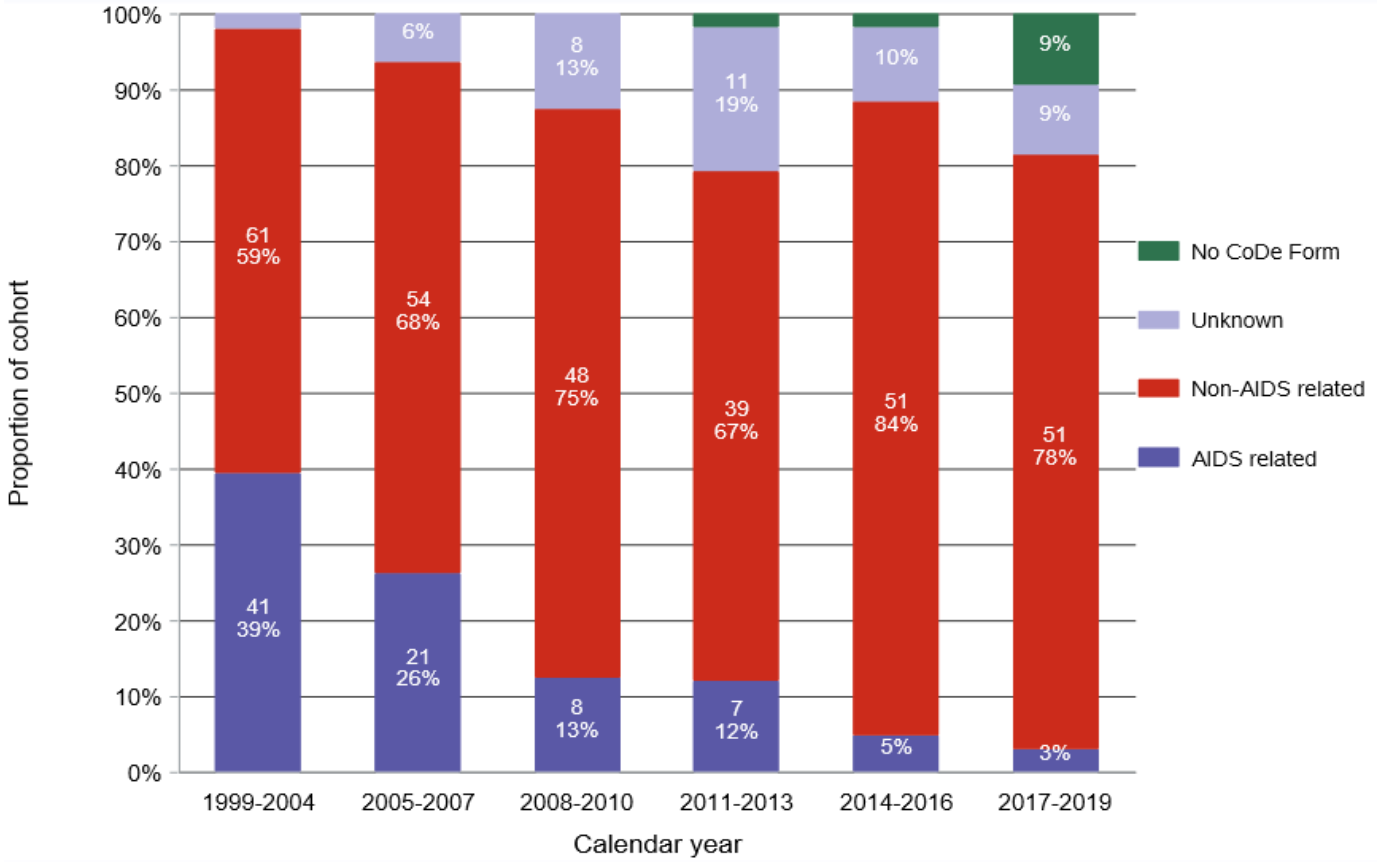


Figure 10: Distribution of AIDS and non-AIDS related deaths in AHOD since cohort inception, by calendar year grouping

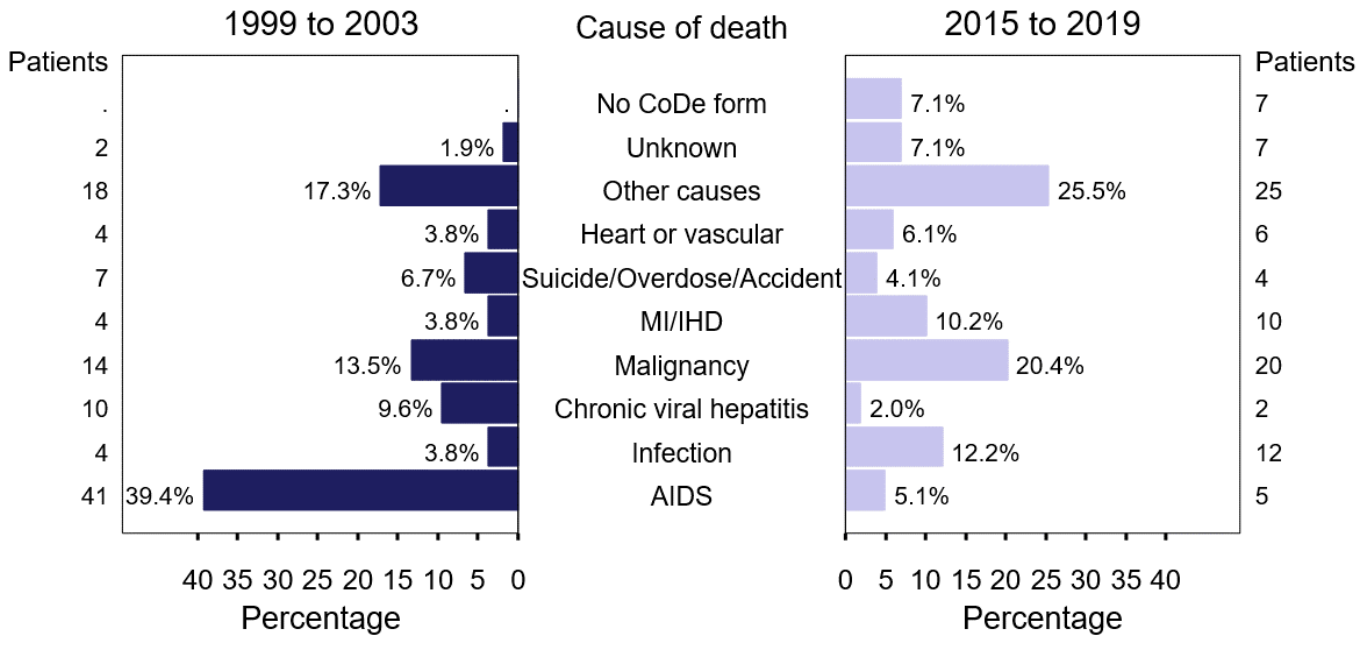


Figure 11: Cause of death 1999-2003 and 2015-2019

Immunological and virological trends

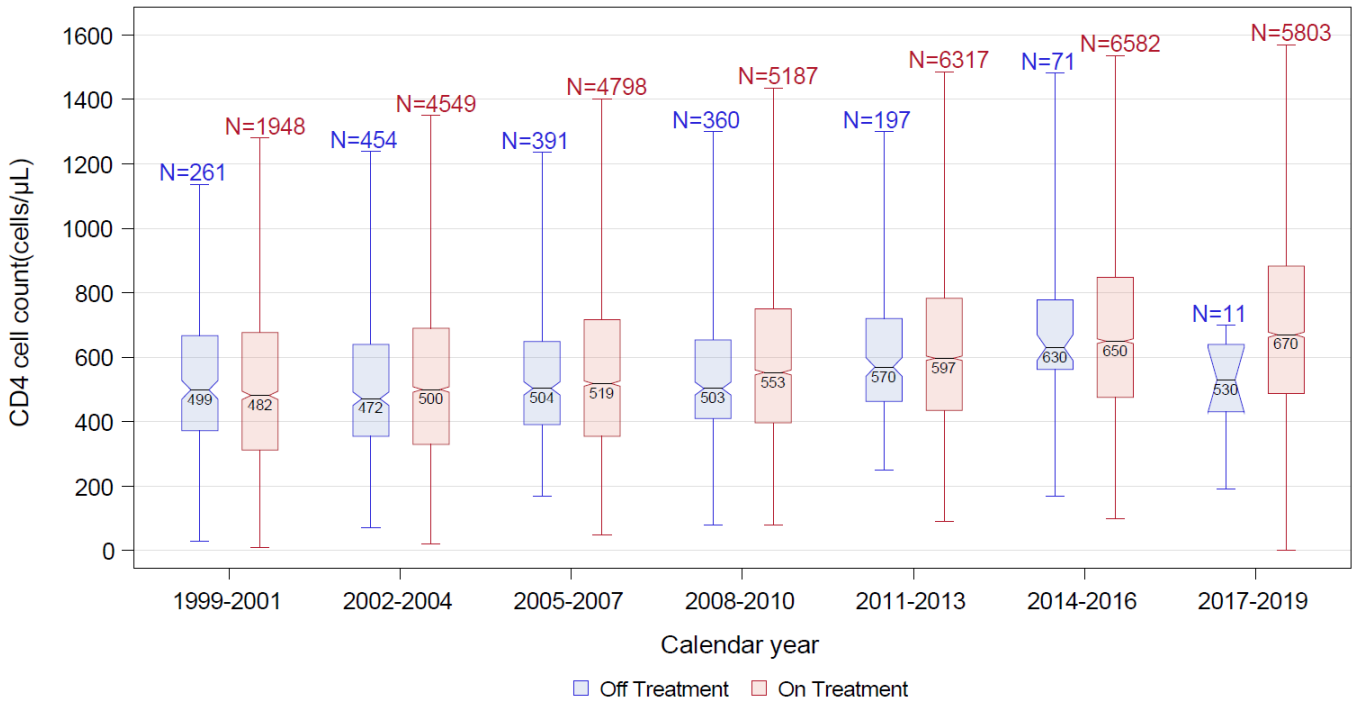


Figure 12: CD4 trends[1] for patients[2] off and on treatment by calendar year groupings
1. Includes retrospective and prospective data. CD4 counts taken as median value during given calendar year.
2. Two sites (242 patients) were censored 31 March 2019.
3. Patients who have not received treatment of duration greater than 14 days during the calendar year
4. Patients who received treatment during the calendar year.
'N=' value includes patients with a viral load/CD4 measured during the calendar year.

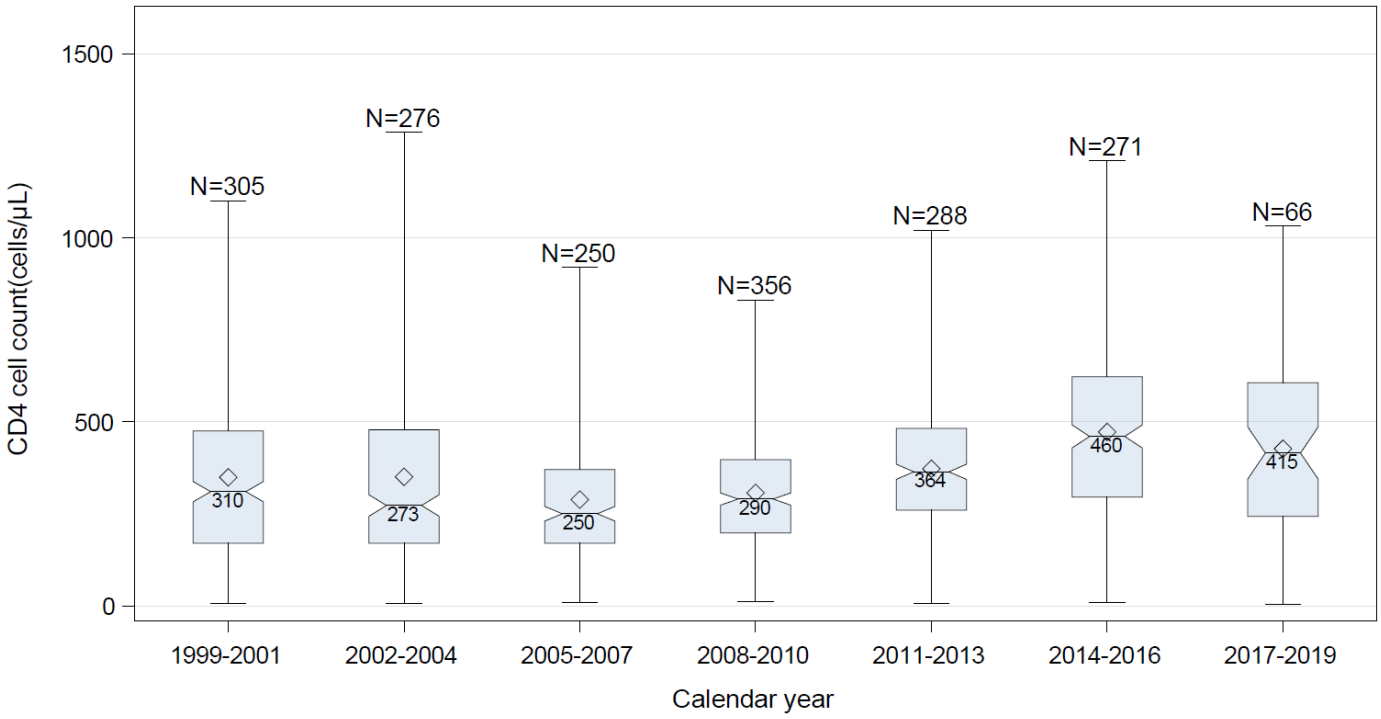


Figure 13: CD4 cell count distribution at antiretroviral therapy initiation by year of ART initation[1-3]
1.First ART defined as a combination of 3 or more antiretroviral agents and a duration of ART>14 days. Includes both retrospective and prospective data. Australian Temporary Residents Access Study (ATRAS) sub study patients excluded from analysis.
2.CD4 cell count selected from the observation closest to ART start date within a timeframe window of 12 months prior to ART start date and 7 days post ART start date.
3. Patients were excluded from the analysis if an undetectable viral load was recorded prior to initiating ART or was missing a viral load measurement prior to initiating ART.

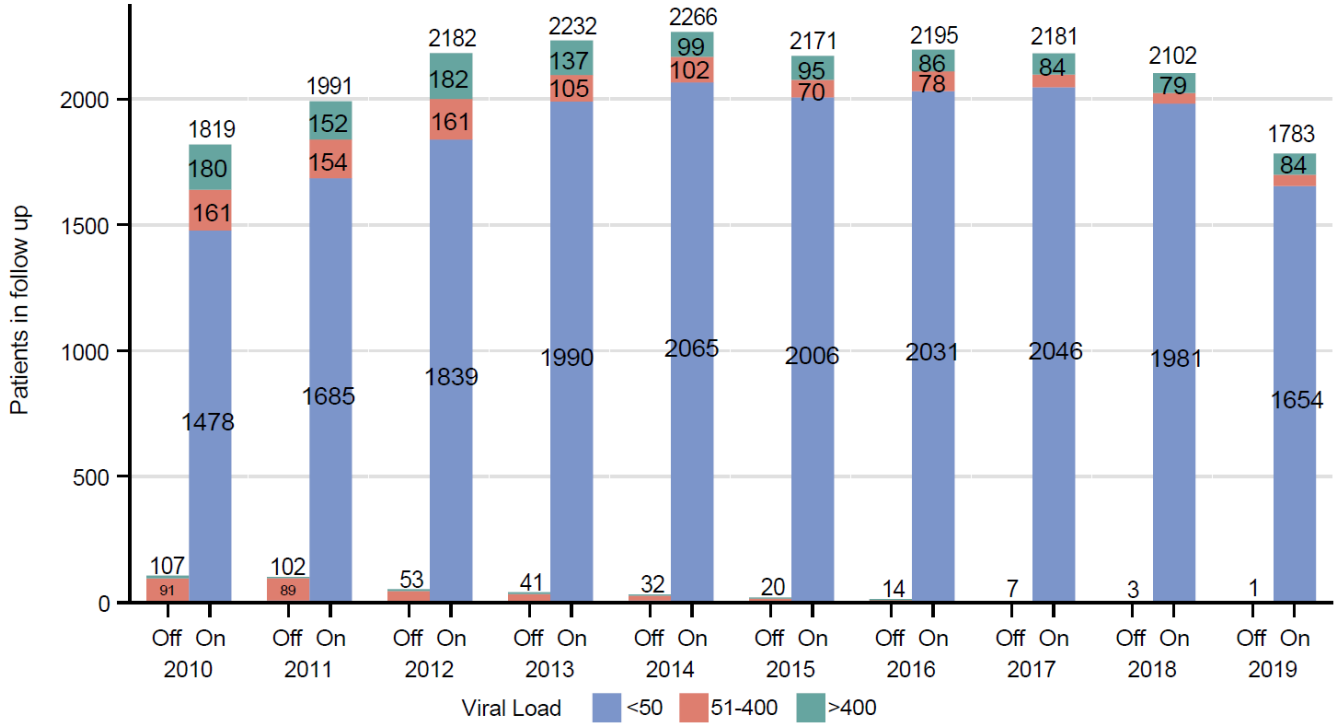


Figure 14: Patients with an undetectable viral load, by treatment status (off /on treatment) and year[1]
1.Off treatment if never on a regimen of duration greater than 14 days for given calendar year. Viral load taken as median value during regimen of longest duration for given calendar year.

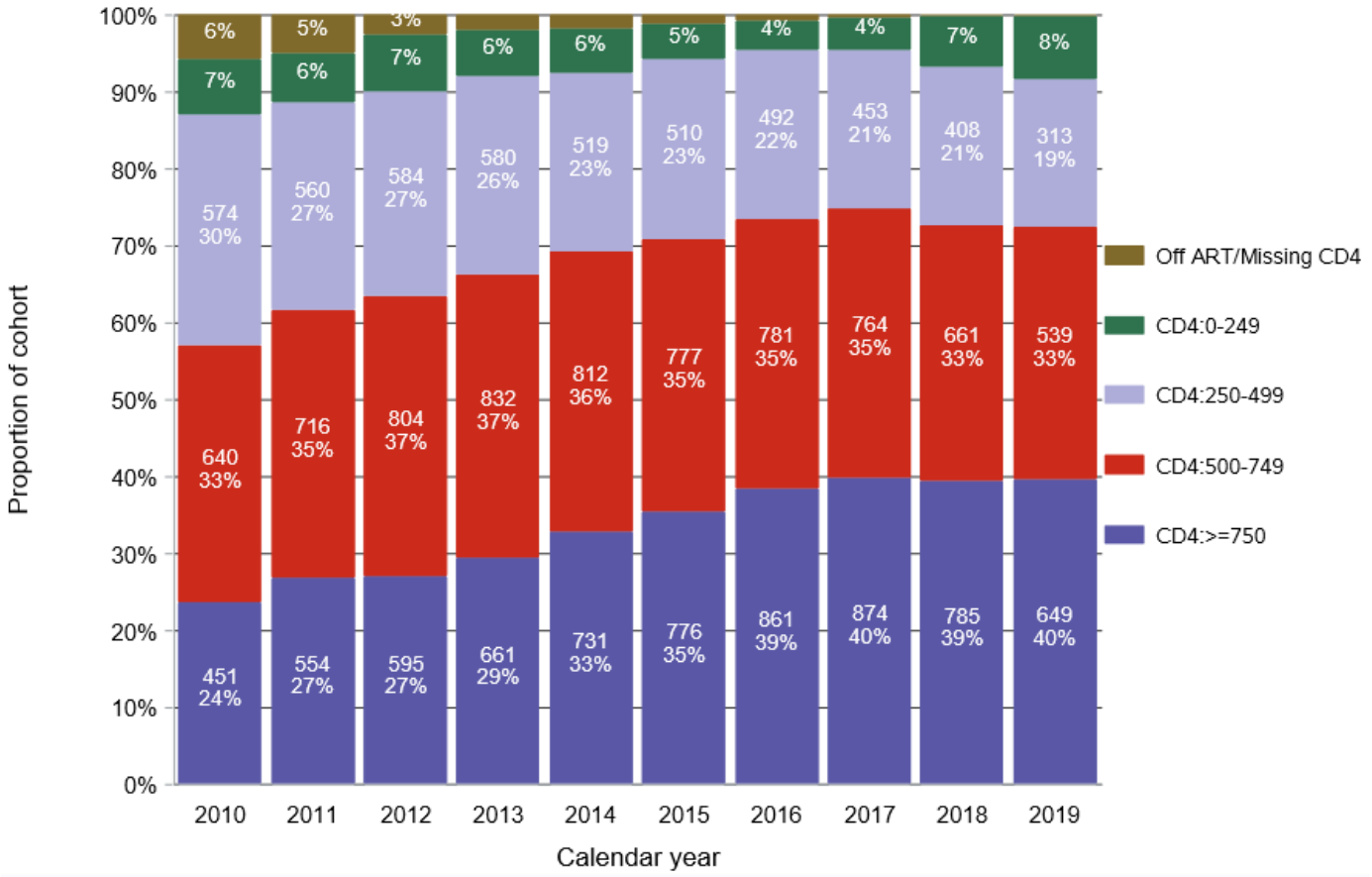


Figure 15: CD4 cell counts (cells/µl) in patients receiving treatment by calendar year[1-3]
1. Includes patients with a prospective CD4 measure during the relevant calendar year.
2. For patients on treatment, analysis based on the initial treatment intent, not on treatment administered (ITT), i.e. no adjustments are made for off-treatment following ART initiation.
3. Patients off treatment include those who have enrolled and have not initiated combination antiretroviral therapy.

Antiretroviral treatment

In 2019, there were a total of 326 unique antiretroviral treatment (ART) combinations (5 of which contain trial drugs) among the 2148 AHOD patients on combination ART. A total of 2744 combination regimens were recorded among these patients throughout 2019.

Around 71% of AHOD patients were on a 3-drug regime (excluding the boosters ritonavir and cobicistat) in 2019, which is consistent with other years. Around 5% where on a 2-drug regime, which compares to 2% in 2010. Around 11% of patients were not on any medications in 2019, compared to 15% in 2010.

In 2019, 37% of antiretroviral regimes contained an integrase inhibitor, a 4% increase from 2018, and over 4 times the number since 2010. In contrast, the proportion of regimes on a non-nucleoside reverse transcriptase inhibitors decreased from 25% in 2010 to 12% in 2019 and those on or a protease inhibitors decreased from 21% to 7% during the same period.

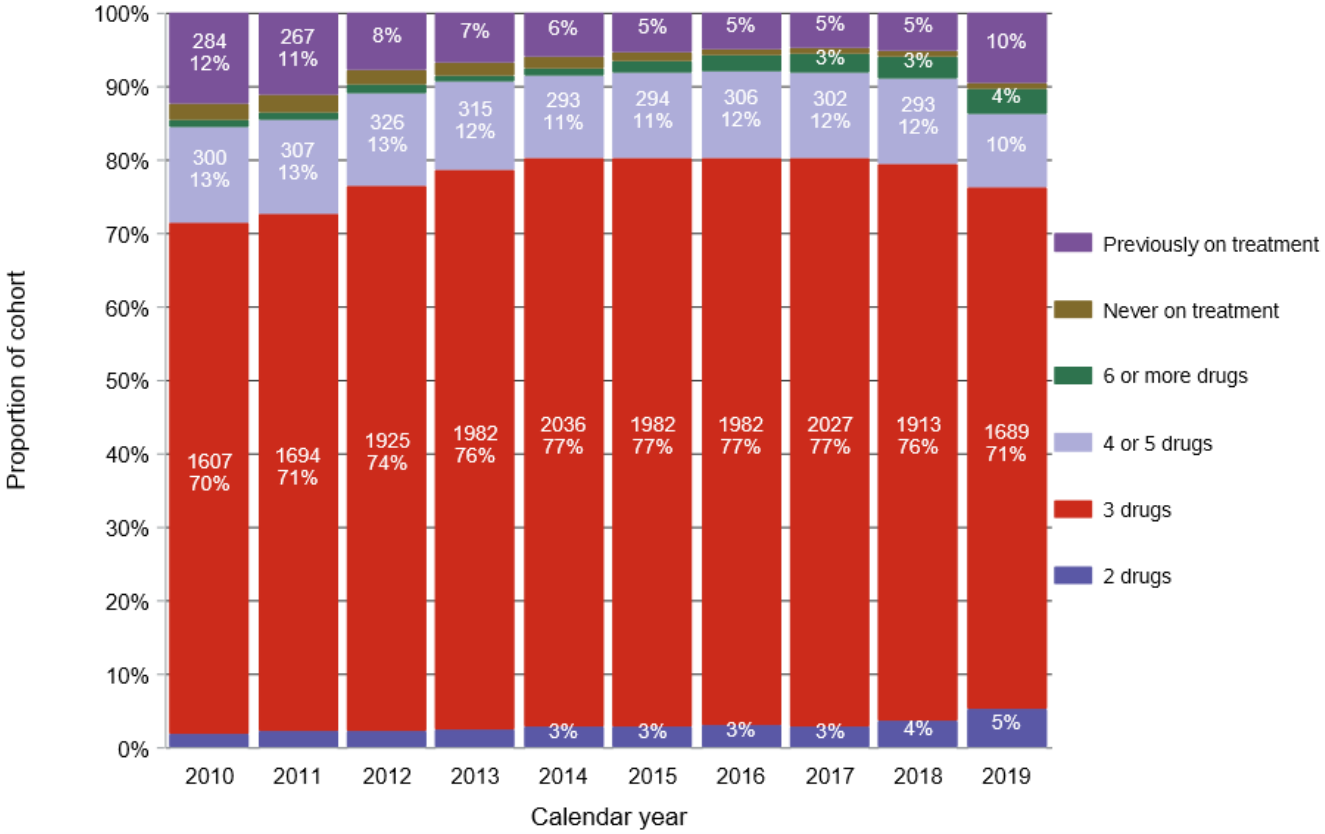


Figure 16: Trends in the number of drugs comprising antiretroviral treatment
For patients who switch regimes during a particular calendar year, the number of drugs is based on the regime of the latest switch for that year. Number of drugs excludes boosters (Cobicostat and Ritonavir).

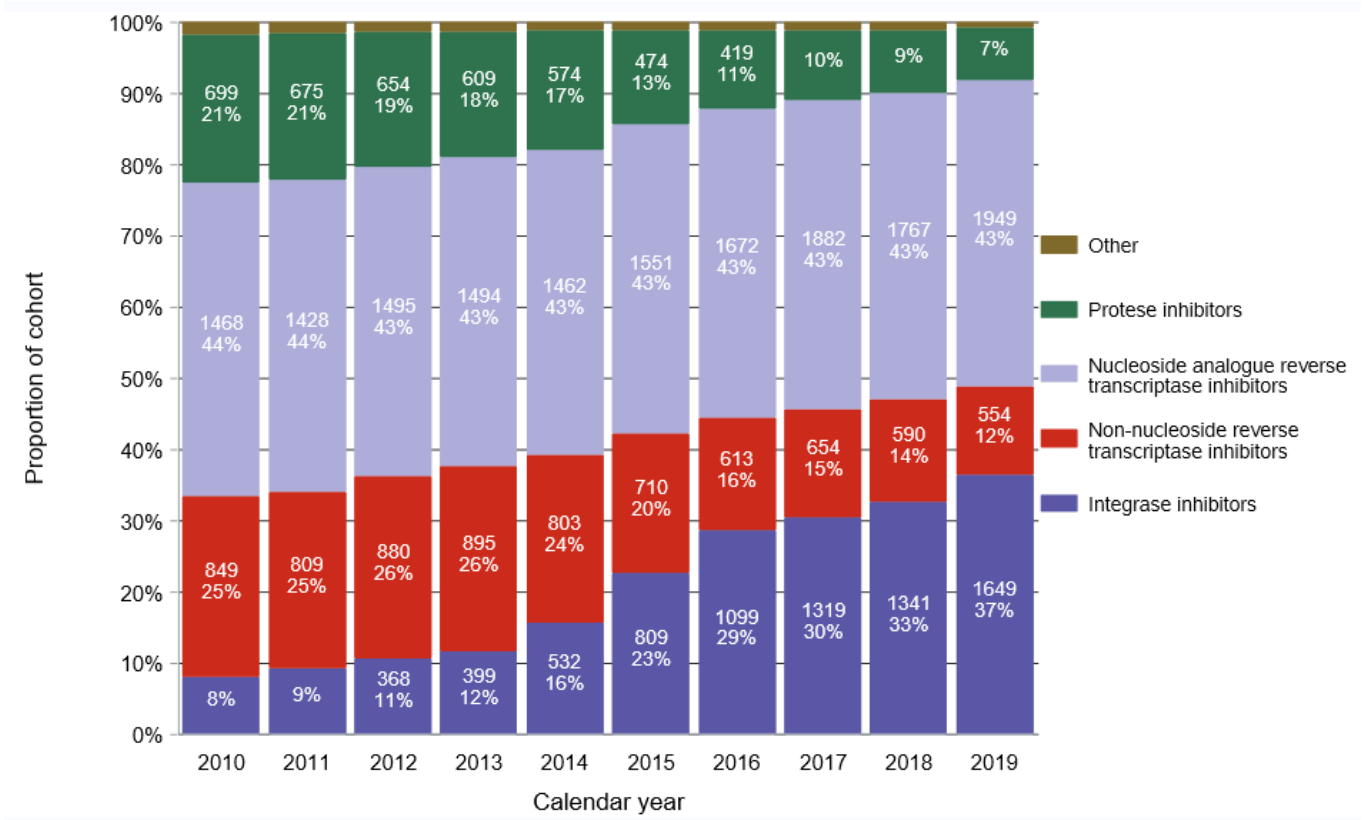


Figure 17: Trends in the classes of drugs making up combination antiretroviral treatment
For patients who switch regimes during a particular calendar year, the class of drugs is based on the regime of the latest switch for that year. Boosters (Cobicostat and Ritonavir) are not included.

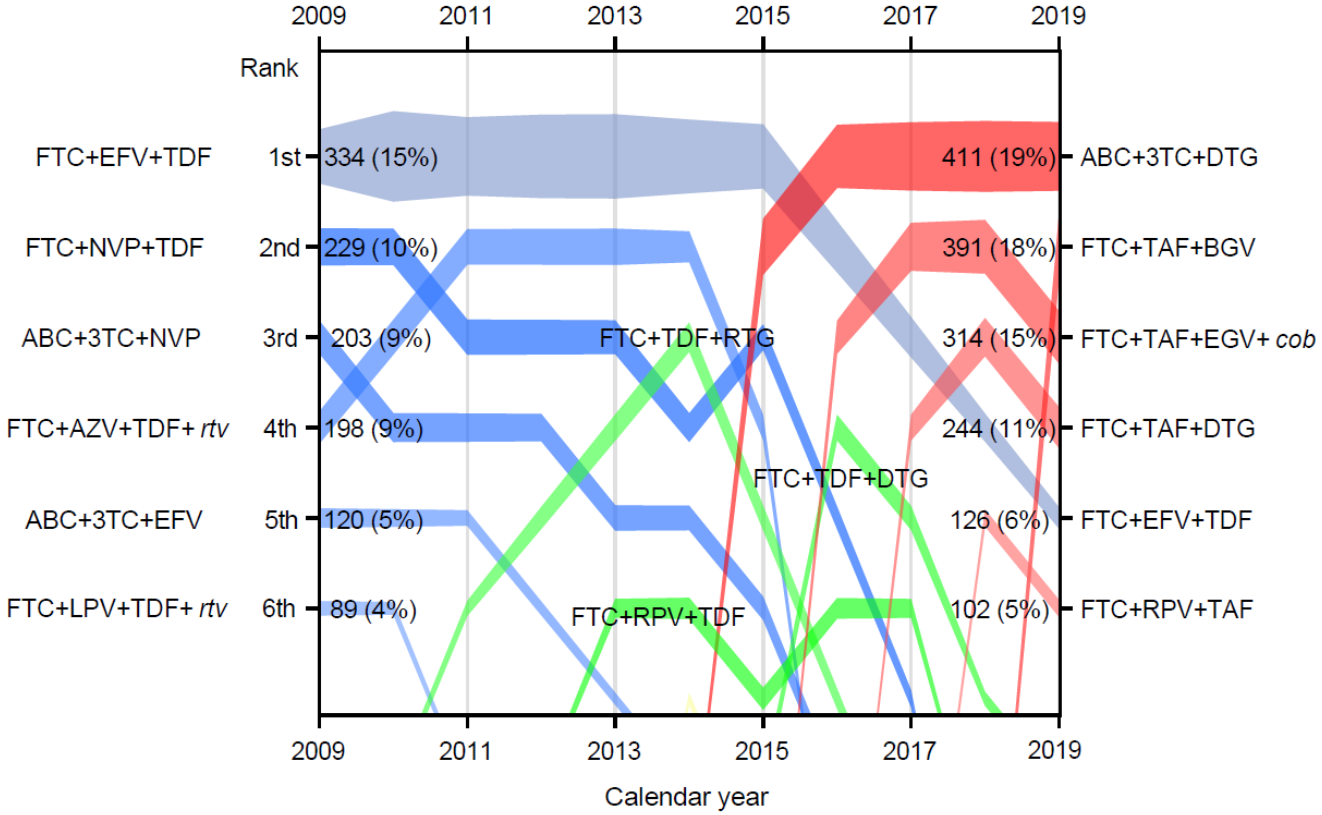


Figure 18: Top treatment combinations among the AHOD cohort[1] ranked by proportion[2] of total ART regimens
1. Includes retrospective and prospective data. Combinations include 3 or more antiretroviral drugs. Fixed dose combinations are separated into individual component antiretroviral drugs.
2. Proportion defined as frequency of ART line divided by total number of ART regimens recorded. Numbers in brackets represent number of patients on the regime.
3TC = Lamivudine ; ABC = Abacavir ; AZV = Atazanavir ; BGV = Bictegravir ; cob = Cobicistat ; DTG = Dolutegravir ; EFV = Efavirenz ; EGV = Elvitegravir ; FTC = Emtricitabine ; LPV = Lopinavir ; NVP = Nevirapine ; RPV = Rilpivirine ; rtv = Ritonavir; TAF = Tenofovir Alafenamide ; TDF = Tenofovir Disoproxil ; ZDV = Zidovudine

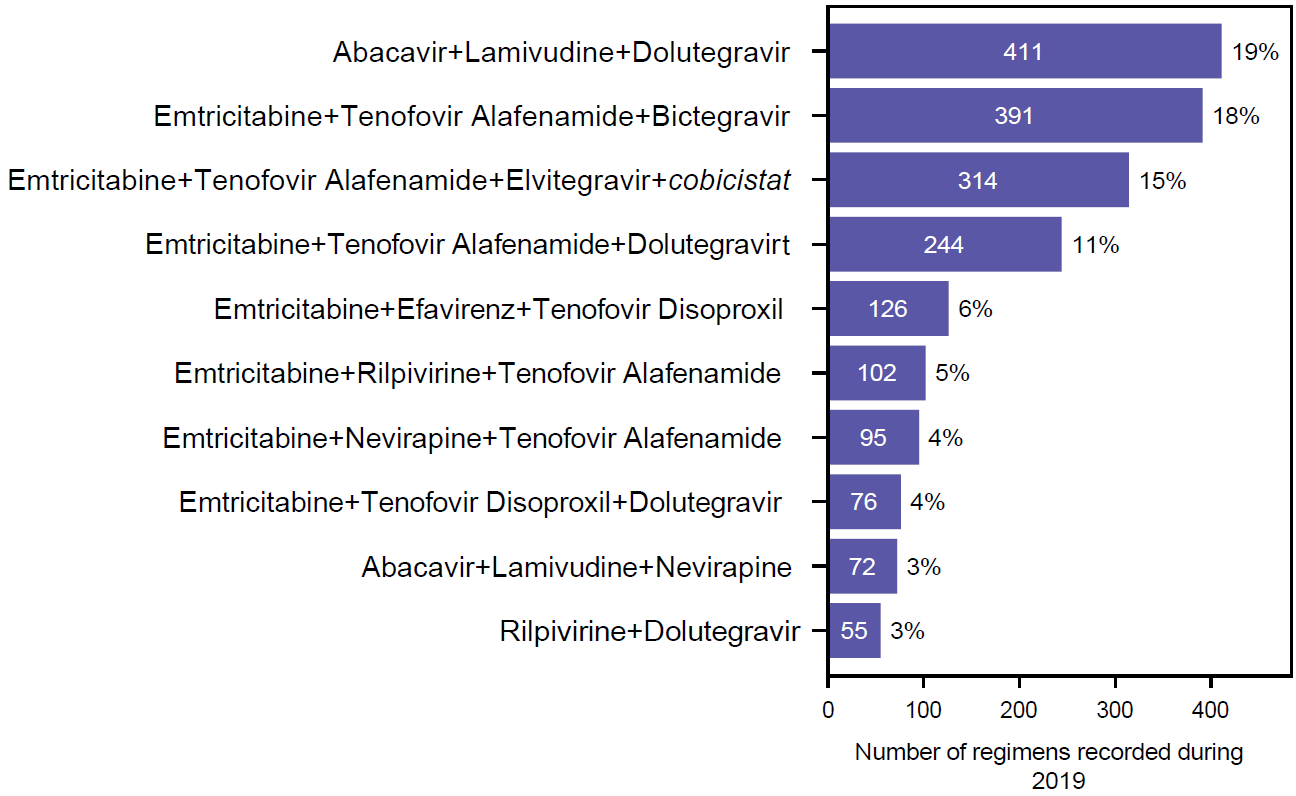


Figure 19: Top 10 ART regimes in 2019
Includes retrospective and prospective data. Fixed dose combinations are separated into individual component antiretroviral drugs.

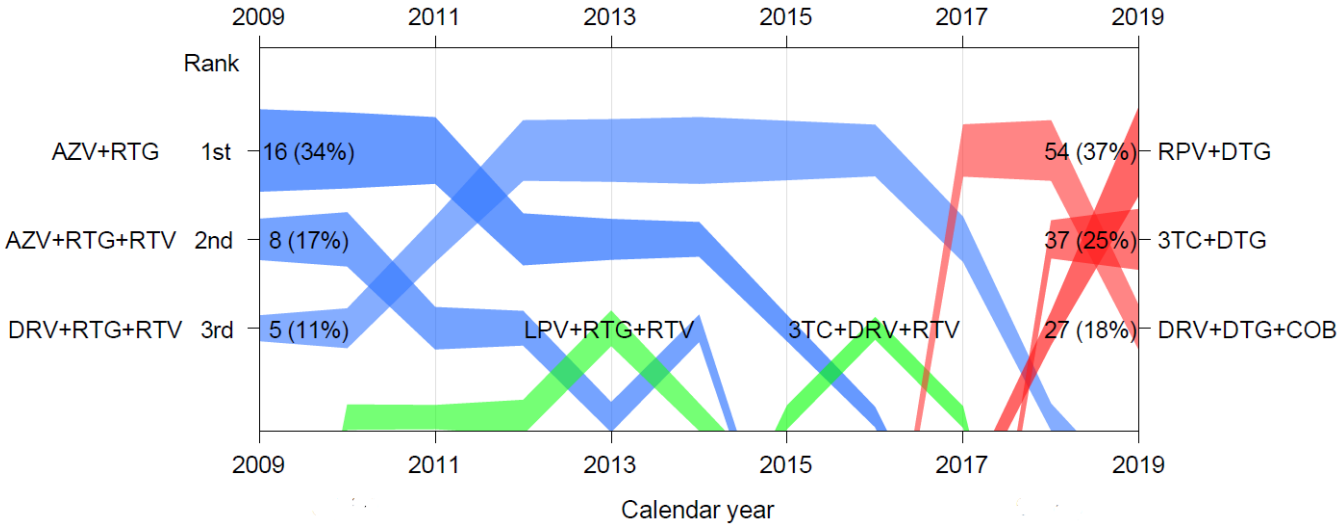


Figure 20: Top Duo therapy combinations[1] among the AHOD cohort[2] ranked by proportion[3] of total ART regimens
1. Valid two drug therapy combination only were included.
2. Includes retrospective and prospective data. Fixed dose combinations are separated into individual component antiretroviral drugs.
3. Proportion defined as frequency of ART line divided by total number of ART regimens recorded. Numbers in brackets represent number of patients on the regime.
3TC = Lamivudine ; AZV = Atazanavir ; cob = Cobicistat ; DRV = Darunavir ; DTG = Dolutegravir ; EFV = Efavirenz ; RPV = Rilpivirine ; RTG = Raltegravir ; RTV = Ritonavir ; SQV = Saquinavir ; SQV = Saquinavir (Fortovase) ; SQV = Saquinavir (Invirase) ; TDF = Tenofovir Disoproxil

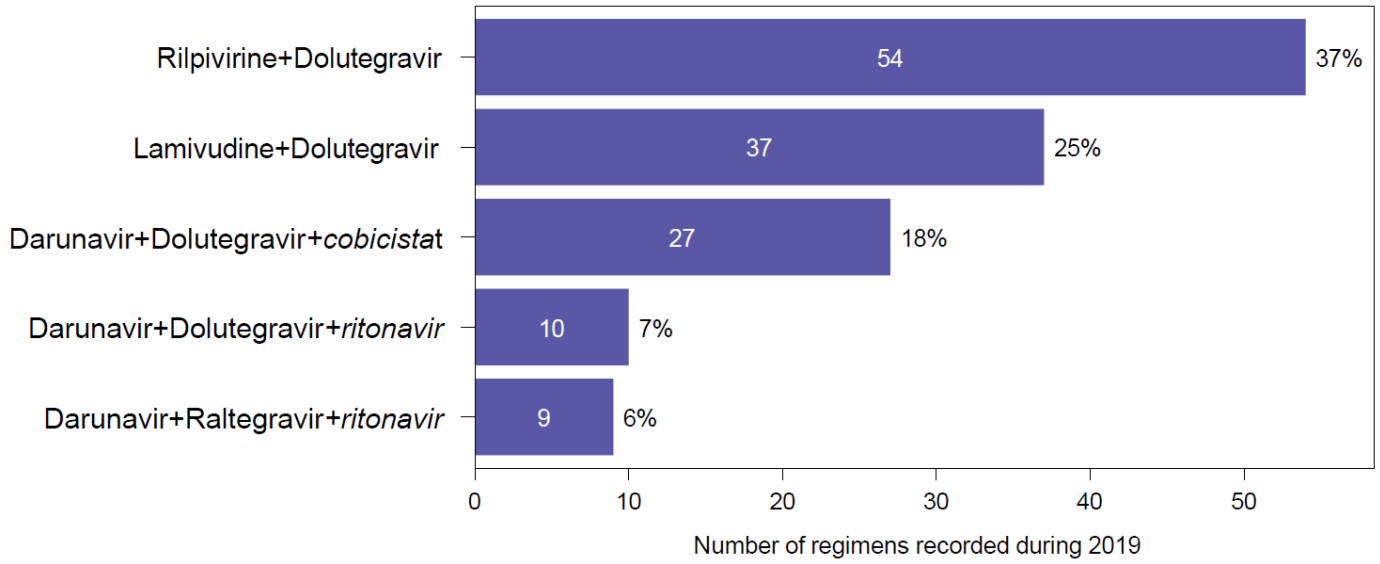


Figure 21: Top five Duo ART regimes (excluding boosters) in 2019
Includes retrospective and prospective data. Fixed dose combinations are separated into individual component antiretroviral drugs.

Table 4: Current use of individual antiretroviral treatments[1]

	2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Nucleoside analogue reverse transcriptase inhibitors (NRTI)																						
Abacavir	283	(13)	258	(11)	255	(11)	237	(9)	207	(8)	204	(8)	212	(8)	181	(7)	143	(5)	106	(4)	93	(4)
Apricitabine	1	(0)	1	(0)	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Combivir	152	(7)	140	(6)	119	(5)	116	(4)	100	(4)	86	(3)	81	(3)	59	(2)	50	(2)	29	(1)	20	(1)
Deskovy	1	(0)	1	(0)	1	(0)	1	(0)	1	(0)	2	(0)	3	(0)	54	(2)	422	(16)	526	(21)	517	(22)
Didanosine	77	(4)	62	(3)	41	(2)	39	(2)	27	(1)	28	(1)	25	(1)	19	(1)	12	(0)	11	(0)	10	(0)
Emtricitabine	104	(5)	128	(6)	122	(5)	176	(7)	179	(7)	151	(6)	148	(6)	152	(6)	179	(7)	151	(6)	132	(6)
Kivexa	410	(19)	402	(17)	454	(19)	496	(19)	487	(19)	537	(20)	495	(19)	324	(13)	248	(9)	202	(8)	160	(7)
Lamivudine	401	(19)	383	(17)	344	(14)	328	(13)	286	(11)	293	(11)	300	(12)	275	(11)	234	(9)	185	(7)	191	(8)
Stavudine	74	(3)	58	(3)	43	(2)	33	(1)	28	(1)	26	(1)	19	(1)	15	(1)	11	(0)	8	(0)	8	(0)
Tenofovir Alafenamide	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)	1	(0)	1	(0)	18	(1)	70	(3)	86	(3)	92	(4)
Tenofovir Disoproxil	450	(21)	406	(18)	338	(14)	381	(15)	366	(14)	307	(12)	274	(11)	238	(9)	189	(7)	103	(4)	64	(3)
Trizivir	55	(3)	41	(2)	31	(1)	23	(1)	19	(1)	18	(1)	17	(1)	13	(1)	10	(0)	5	(0)	4	(0)
Truvada	857	(40)	946	(41)	827	(34)	934	(36)	911	(35)	947	(36)	866	(34)	770	(30)	621	(24)	294	(12)	206	(9)
Zalcitabine	1	(0)	1	(0)	0	(0)	0	(0)	0	(0)	1	(0)	1	(0)	1	(0)	1	(0)	1	(0)	1	(0)
Zidovudine	60	(3)	48	(2)	38	(2)	37	(1)	36	(1)	32	(1)	28	(1)	24	(1)	18	(1)	10	(0)	9	(0)
Non-nucleoside reverse transcriptase inhibitors (NNRTI)																						
Delavirdine	2	(0)	3	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Efavirenz	468	(22)	452	(20)	291	(12)	350	(14)	292	(11)	243	(9)	211	(8)	173	(7)	121	(5)	88	(3)	65	(3)
Etravirine	99	(5)	117	(5)	120	(5)	140	(5)	139	(5)	148	(6)	149	(6)	146	(6)	133	(5)	110	(4)	80	(3)
Nevirapine	635	(29)	616	(27)	595	(25)	626	(24)	590	(23)	551	(21)	513	(20)	452	(18)	461	(18)	331	(13)	272	(11)
Rilpivirine	2	(0)	3	(0)	6	(0)	12	(0)	28	(1)	28	(1)	34	(1)	42	(2)	65	(2)	64	(3)	65	(3)
Entry Inhibitor (EI)																						
Enfurvirtide	30	(1)	18	(1)	10	(0)	7	(0)	5	(0)	4	(0)	0	(0)	0	(0)	1	(0)	0	(0)	0	(0)
Fostemsavir	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)	2	(0)	2	(0)	1	(0)	3	(0)

1. All treatment records of ≥2 weeks of treatment in any calendar year were included in this analysis. The denominator includes all patients that could have been on antiretroviral therapy (i.e. HIV positive) in any calendar year. The proportion of patients on each drug in any calendar year does not add up to 100% across all ART drug groups in each calendar year as patients on more than one ARV during a calendar year period will be counted in all of the relevant ART groups. Includes retrospective and prospective data.
2. See table 5 for composition of fixed dose combination tablets

Table 4 continued: Current use of individual antiretroviral treatments[1]

	2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Protease Inhibitors (PI)																						
Amprenavir	6	*(0)*	6	*(0)*	6	*(0)*	9	*(0)*	6	*(0)*	3	*(0)*	2	*(0)*	2	*(0)*	2	*(0)*	0	*(0)*	0	*(0)*
Atazanavir	577	*(27)*	601	*(26)*	580	*(24)*	588	*(23)*	578	*(22)*	530	*(20)*	443	*(17)*	341	*(13)*	251	*(10)*	151	*(6)*	109	*(5)*
Darunavir	196	*(9)*	231	*(10)*	260	*(11)*	325	*(13)*	331	*(13)*	397	*(15)*	424	*(17)*	418	*(16)*	416	*(16)*	290	*(12)*	235	*(10)*
Evotaz	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	15	*(1)*	35	*(1)*	27	*(1)*	31	*(1)*
Fosamprenavir	42	*(2)*	29	*(1)*	28	*(1)*	22	*(1)*	23	*(1)*	23	*(1)*	16	*(1)*	10	*(0)*	11	*(0)*	8	*(0)*	3	*(0)*
Indinavir	23	*(1)*	16	*(1)*	18	*(1)*	16	*(1)*	14	*(1)*	12	*(0)*	12	*(0)*	14	*(1)*	10	*(0)*	9	*(0)*	8	*(0)*
Kaletra	251	*(12)*	260	*(11)*	219	*(9)*	200	*(8)*	169	*(7)*	141	*(5)*	98	*(4)*	71	*(3)*	51	*(2)*	27	*(1)*	15	*(1)*
Lopinavir	87	*(4)*	81	*(4)*	71	*(3)*	76	*(3)*	54	*(2)*	45	*(2)*	34	*(1)*	17	*(1)*	11	*(0)*	7	*(0)*	8	*(0)*
Nelfinavir	12	*(1)*	12	*(1)*	10	*(0)*	7	*(0)*	6	*(0)*	6	*(0)*	6	*(0)*	5	*(0)*	6	*(0)*	5	*(0)*	4	*(0)*
Prezcobix	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	23	*(1)*	115	*(4)*	117	*(5)*	115	*(5)*
Saquinavir	45	*(2)*	34	*(1)*	31	*(1)*	25	*(1)*	22	*(1)*	18	*(1)*	16	*(1)*	15	*(1)*	17	*(1)*	8	*(0)*	8	*(0)*
Tipranavir	13	*(1)*	6	*(0)*	4	*(0)*	2	*(0)*	2	*(0)*	2	*(0)*	2	*(0)*	1	*(0)*	2	*(0)*	3	*(0)*	3	*(0)*
Intergrase Inhibitors (II)																						
Bictegravir	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	2	*(0)*	2	*(0)*	3	*(0)*	11	*(0)*
Cabotegravir	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	1	*(0)*	3	*(0)*	5	*(0)*	3	*(0)*
Dolutegravir	0	*(0)*	1	*(0)*	2	*(0)*	7	*(0)*	10	*(0)*	188	*(7)*	378	*(15)*	443	*(17)*	689	*(26)*	688	*(27)*	681	*(29)*
Elvitegravir	1	*(0)*	3	*(0)*	1	*(0)*	5	*(0)*	6	*(0)*	5	*(0)*	3	*(0)*	11	*(0)*	10	*(0)*	9	*(0)*	8	*(0)*
Raltegravir	317	*(15)*	483	*(21)*	560	*(23)*	667	*(26)*	703	*(27)*	736	*(28)*	645	*(25)*	560	*(22)*	548	*(21)*	374	*(15)*	296	*(12)*
Class Combinations[2]																						
Atripla	12	*(1)*	258	*(11)*	341	*(14)*	395	*(15)*	409	*(16)*	413	*(16)*	377	*(15)*	324	*(13)*	262	*(10)*	181	*(7)*	135	*(6)*
Biktarvy	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	1	*(0)*	0	*(0)*	15	*(1)*	436	*(18)*
Complera	0	*(0)*	0	*(0)*	3	*(0)*	54	*(2)*	118	*(5)*	136	*(5)*	148	*(6)*	148	*(6)*	147	*(6)*	55	*(2)*	30	*(1)*
Genvoya	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	14	*(1)*	14	*(1)*	22	*(1)*	256	*(10)*	395	*(15)*	440	*(17)*	415	*(17)*
Odefsey	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	0	*(0)*	91	*(3)*	125	*(5)*	117	*(5)*
Quad	0	*(0)*	0	*(0)*	0	*(0)*	1	*(0)*	7	*(0)*	81	*(3)*	129	*(5)*	143	*(6)*	46	*(2)*	15	*(1)*	12	*(1)*
Triumeq	2	*(0)*	2	*(0)*	2	*(0)*	2	*(0)*	2	*(0)*	4	*(0)*	273	*(11)*	433	*(17)*	499	*(19)*	497	*(20)*	456	*(19)*
CCR5																						
Maraviroc	27	*(1)*	37	*(2)*	39	*(2)*	46	*(2)*	56	*(2)*	58	*(2)*	63	*(2)*	67	*(3)*	68	*(3)*	51	*(2)*	42	*(2)*

Table 5: Composition of fixed dose combination tablets

Single tablet name(s)	Regime
Atripla	Efavirenz+Emtricitabine+Tenofovir Disoproxil
Biktarvy	Bictegravir+Emtricitabine+Tenofovir Alafenamide
Combivir	Lamivudine+Zidovudine
Complera	Emtricitabine+Rilpivirine+Tenofovir Disoproxil
Deskovy	Emtricitabine+Tenofovir Alafenamide
Evotaz	Atazanavir+*cobicistat*
Genvoya	Elvitegravir+Emtricitabine+Tenofovir Alafenamide+*cobicistat*
Juluca	Dolutegravir+Rilpivirine
Kaletra	Lopinavir+*ritonavir*
Kivexa	Abacavir+Lamivudine
Odefsey	Emtricitabine+Rilpivirine+Tenofovir Alafenamide
Prezcobix	Darunavir+*cobicistat*
Quad	Elvitegravir+Emtricitabine+Tenofovir Disoproxil+*cobicistat*
Symtuza	Darunavir+Emtricitabine+Tenofovir Alafenamide+*cobicistat*
Triumeq	Abacavir+Dolutegravir+Lamivudine
Trizivir	Abacavir+Lamivudine+Zidovudine
Truvada	Emtricitabine+Tenofovir Disoproxil

Boosters are italicised

A full list of AHOD publications is available online:
https://kirby.unsw.edu.au/project/ahod

Australian HIV Observational Database contributors

Asterisks indicate steering committee members in 2020.

New South Wales: D Ellis, Plaza Medical Centre, Coffs Harbour; M Bloch, T Vincent, Ellen Spencer, Holdsworth House Medical Practice, Sydney; D Allen, Holden Street Clinic, Gosford; D Smith, A Rankin, L Lindsay, Lismore Sexual Health & AIDS Services, Lismore; D Baker*, R Mousavi, S Cabot, H Farlow, East Sydney Doctors, Surry Hills; DJ Templeton*, Niveditha Manokaran, G Owen , RPA Sexual Health, Camperdown; Eva Jackson, K McCallum, J Gough, Nepean and Blue Mountains Sexual Health and HIV Clinic, Penrith; N Ryder, G Sweeney, B Moran, Clinic 468, HNE Sexual Health, Tamworth; A Carr, K Hesse, J Rogers, St Vincent's Hospital, Darlinghurst; R Finlayson, L Tan, J Le, Taylor Square Private Clinic, Darlinghurst; K Brown, V Aldous, JL Little, Illawarra Sexual Health Service, Warrawong; R Varma, R McIver, H Lu, Sydney Sexual Health Centre, Sydney; D Couldwell, J Walsh, Western Sydney Sexual Health Clinic; DE Smith*, V Furner, D Smith, Albion Street Centre; A Cogle*, National Association of People living with HIV/AIDS; C Lawrence*, National Aboriginal Community Controlled Health Organisation; B Mulhall*, Department of Public Health and Community Medicine, University of Sydney; M Boyd*, University of Adelaide; M Law*, K Petoumenos*, J Hutchinson*, N Rose, T Dougherty, The Kirby Institute, University of NSW.

Northern Territory: M Gunathilake, S Reekie, Centre for Disease Control, Darwin.

Queensland: M O'Sullivan, S White, Gold Coast Sexual Health Clinic, Southport; D Russell, F Bassett, M Rodriguez, Cairns Sexual Health Service, Cairns; D Sowden, K Taing, P Smith, Clinic 87, Sunshine Coast Hospital and Health Service, Nambour; D Orth, D Youds, Gladstone Road Medical Centre, Highgate Hill; D Rowling, J Langton-Lockton, E Knowland, E Witness, N Latch, Sexual Health and HIV Service in Metro North, Brisbane; B Dickson*, CaraData.

South Australia: W Donohue, O'Brien Street General Practice, Adelaide.

Victoria: R Moore, S Edwards, S Boyd, Northside Clinic, North Fitzroy; NJ Roth*, H Lau, Prahran Market Clinic, South Yarra; R Teague, J Silvers*, W Zeng, Melbourne Sexual Health Centre, Melbourne; J Hoy*, M Giles*, K Watson, M Bryant, S Price, The Alfred Hospital, Melbourne; I Woolley, T Korman, J O'Bryan, K Cisera, Monash Medical Centre, Clayton.

Western Australia: D Nolan, A Allen, G Guelfi. Department of Clinical Immunology, Royal Perth Hospital, Perth.

New Zealand: G Mills, C Wharry, S Hayett, Waikato District Hospital Hamilton; N Raymond, K Bargh, Wellington Hospital, Wellington.

CoDe reviewers: D Templeton, M Giles, K Brown and J Hoy.

Acknowledgments
The Australian HIV Observational Database is funded as part of the Asia Pacific HIV Observational Database, a program of The Foundation for AIDS Research, amfAR, and is supported in part by grant No. U01-AI069907 from the U.S. National Institutes of Health with funding provided by the National Institute of Allergy and Infectious Diseases, the Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institute of Diabetes and Digestive and Kidney Diseases, National Institute on Drug Abuse, National Heart, Lung, and Blood Institute, National Institute on Alcohol Abuse and Alcoholism, Fogarty International Center, the National Cancer Institute and the National Institute for Mental Health. And by unconditional grants from ViiV Healthcare, Janssen-Cilag and Gilead Sciences. The Kirby Institute is funded by the Australian Government Department of Health, and is affiliated with the Faculty of Medicine, UNSW Australia. The content is solely the responsibility of the authors and the views expressed in this publication do not necessarily represent the position of the Australian Government or the official views of any of the governments, institutions or funders mentioned above.

Suggested citation: The Kirby Institute. Australian HIV Observational Database Annual Report 2020. The Kirby Institute, UNSW Australia, Sydney NSW. Volume 20, Number 1: December 2020.

Report available at: http://www.kirby.unsw.edu.au/

ISSN 1443-3907

The Australian HIV Observational Database report is produced by The Kirby Institute.
Subscription is free, and can be obtained by writing or calling:

The Australian HIV Observational Database
The Kirby Institute
Wallace Wurth Building
UNSW Sydney, Sydney, NSW 2052.

Tel: +612 9385 0900
Fax: +612 9385 0920