

HIV in Scotland: update to 31 December 2022

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1. Introduction

This report presents data on i) uptake of HIV pre-exposure prophylaxis (PrEP), ii) HIV diagnoses and iii) uptake of HIV specialist treatment and care for 1 January to 31 December 2022. For the purposes of comparison, this report presents data for the period 2013 to 2022; this includes the two years from early 2020 to the end of 2021 when significant COVID-19 pandemic measures were in place which impacted access to health care.

Laboratory-confirmed HIV diagnoses data are provided by the diagnostic and specialist Blood Borne Virus testing laboratories in Scotland. In this report, the diagnoses data are recorded as either first ever diagnoses or those previously diagnosed elsewhere but now reported (for the first time) in Scotland. Data on HIV viral load and immunology markers are provided by the HIV specialist testing laboratories and immunology laboratories, respectively, in Scotland. This surveillance system is enhanced with supplementary information provided by HIV clinicians and health care staff providing specialist treatment and care. The national HIV database is maintained by Public Health Scotland (PHS) and is continually being updated. Therefore, the data reported here may differ from previous reports.

Data on the uptake of HIV PrEP, drugs taken to prevent HIV infection, are presented for the period July 2017 (when the NHS-funded HIV PrEP programme commenced in Scotland) to 31 December 2022. These data are extracted from the National Sexual Health IT System (NaSH), hosted by the Data and Digital Innovation Directorate of PHS. Reports from Year One and Year Two of the programme are available via the [HIV page](#) of the Health Protection Scotland (HPS) website (now Public Health Scotland (PHS)).^{1,2}

To maintain patient confidentiality and prevent deductive disclosure, numbers less than five have been suppressed where appropriate and are indicated with an asterisk (*). To prevent back-calculation of suppressed numbers from totals, it may also be necessary to suppress some numbers greater than five (secondary suppression).

HIV and sexual health services were extensively redesigned during and after the COVID-19 pandemic and some elements of service provision are delivered remotely online, impacting both the way in which people access HIV testing and those living with HIV access treatment and care. As data on HIV diagnoses, treatment and care are presented for the period 2013 to 2022, caution should be taken when interpreting 2020 and 2021 data, in particular, given the COVID-19 pandemic measures in place during those years and the effect on the provision of,

and access to, HIV testing, treatment and care, as well as changes to sexual and healthcare seeking behaviours and reduced resources to undertake surveillance activities.

2. Main points

- HIV pre-exposure prophylaxis (PrEP): 1,142 individuals accessed PrEP for the first time between July and December 2022 - an average of 190 per month. This is the highest number in any six-month period since implementation of the programme in July 2017; this compares to the second and third highest monthly averages of 166 between July and December 2017 and 150 between January and June 2018.
- HIV diagnosis: during 2022, a total of 317 new reports of people living with HIV were recorded in Scotland. This compares to a total of 213 reports in 2021, 265 reports in 2020 and 324 reports in 2019.
- A shift has been observed in the balance of first ever diagnoses and those previously known elsewhere but reported for the first time in Scotland with the latter exceeding the former in 2022. There were 209 new reports of people living with HIV who were previously known to have HIV infection before arriving in Scotland compared to 108 reports of new, first ever diagnoses, respectively.
- The proportion of previously known diagnoses has steadily increased in recent years from 40% of all new reports in 2018 to 66% in 2022.
- At the same time, the proportion of all HIV reports accounted for by first ever diagnoses has decreased year on year from 60% in 2018 to 34% in 2022. Since 2018, the annual number of first ever diagnoses recorded has decreased by 44% from 193 in 2018 to 108 in 2022.
- For the first time since 2007, heterosexually acquired first ever diagnoses have exceeded in number and proportion those among gay, bisexual and other men who have sex with men in Scotland (42%, 45/108 versus 29%, 31/108). It should be noted, however, that for 28 individuals in 2022 the mode of acquisition is not yet known which may impact these data.
- Over half (56%, 25/45) of first ever diagnoses acquired via heterosexual intercourse are likely to have been acquired outwith Scotland compared to 45% (14/31) among gay, bisexual and other men who have sex with men.
- With a total of nine recently acquired HIV infections detected in 2022, the number of recently acquired infections observed among newly diagnosed gay, bisexual and other

men who have sex with men, heterosexuals and people who inject drugs, and for whom HIV antibody avidity test data were available, continues to decline.

- While the lowest proportion of first ever diagnoses recorded at a late stage of HIV infection (i.e. when the individual may have progressed to advanced HIV disease) since 2015 was observed in 2022, there is evidence that some people are still being diagnosed at a late, or very late, stage of infection with 24 of 108 (22%) first ever diagnoses in 2022 recorded as late/very late.
- At the end of December 2022, 93% (6,150) of the estimated cohort of 6,613 people living with HIV in Scotland had been diagnosed and, of these individuals, 84% (5,189/6,150) were reported as having attended HIV services in the previous 18 months, that is between 1 July 2021 and 31 December 2022.
- Of those attending HIV services, 98% (5,065/5,189) were receiving antiretroviral therapy (ART), of whom 97% (4,926/5,065) were recorded as having a suppressed viral load and 93% (4,729/5,065) had an undetectable viral load.

3. Results

3.1. HIV Pre-exposure Prophylaxis (PrEP)

- NHS-prescribed HIV pre-exposure prophylaxis (PrEP) has been available in Scotland since July 2017. Details of the PrEP service and uptake of PrEP during the first two years of service delivery have been published previously on the PHS and HPS websites.^{1,2} PrEP prescriptions are collated using the Scotland wide sexual health IT system (NaSH). At the end of December 2022, a total of 40,881 PrEP prescriptions were recorded in NaSH: this corresponds to 8,824 individuals who have ever been prescribed PrEP in Scotland since July 2017.
- Reflecting the eligibility criteria in place at initiation of the programme, the majority, 93% (8,220/8,8824), of those prescribed PrEP were gay, bisexual and other men who have sex with men and this has been the pattern since the start of the programme (Table 1, Figure 1). Small numbers of men with only women partners (12 or fewer per year) and women with men and/or women partners (16 or fewer per year) have accessed HIV PrEP for the first time since the programme began. It should also be noted that 136 individuals with self-reported trans status accessed HIV PrEP for the first time during this period (Table 1).
- Of all individuals with recorded ethnicity noted, 92% (6,505/7,105) were White.
- A total of 1,142 individuals attended sexual health services to access PrEP for the first time between July and December 2022: this is an average of 190 new individuals each month from July to December 2022 (Figure 1). This is the highest monthly average in any six-month period since implementation of the programme in July 2017 (Figure 1) and compares to 166 between July and December 2017 and 150 between January and June 2018.
- This HIV PrEP uptake is in stark contrast to the dramatic decrease recorded in individuals accessing it for the first time during the early months of the COVID-19 pandemic as the country went into lockdown and services were redesigned.
- Between July and December 2022, the majority of HIV PrEP recipients attended clinics in NHS Lothian (30%, 345/1,142), NHS Greater Glasgow and Clyde (25%, 291/1,142) and NHS Grampian (12%, 138/1,142).

- During the five and a half years since NHS prescribed PrEP became available, the highest number and proportion of individuals attended for the first time in NHS Greater Glasgow and Clyde 35% (3,123/8,824) followed by NHS Lothian 27% (2,368/8,824). (Table 2).
- Over the five and a half years, three quarters (76%, 6,680/8,824) of all those prescribed HIV PrEP for the first time were aged less than 40 years. Of all HIV PrEP initiates, one fifth (22%, 1,962/8,824) were aged 25-29 years, another fifth (20%, 1,763/8,824) were aged 20-24 years, 16% (1505/8824) were aged 30-34 years and 12% (1,050/8,824) were aged 35-39 years (Figure 2).
- During the two years post introduction of HIV PrEP (2017 to 2019), a decrease in HIV incidence among gay, bisexual and other men who have sex with men who had been prescribed PrEP has been observed.³ Since 2017, the annual number of first ever diagnoses recorded has more than halved (decreasing from 226 first ever diagnoses in 2017 to 108 in 2022). Further work is ongoing to interpret HIV incidence during the COVID-19 pandemic in 2020 and 2021.
- Since July 2017, when the NHS-funded HIV PrEP programme commenced, 12 HIV seroconversions have been recorded among individuals ever prescribed NHS-funded PrEP although it is not known if all 12 individuals were taking PrEP at the time of infection. For a proportion of these individuals, sub-optimal adherence around the point of exposure was noted.

Figure 1: Number of i) all prescriptions, ii) new individuals prescribed HIV PrEP for the first time (first prescriptions), and iii) individuals ever prescribed HIV PrEP per month (cumulative), Scotland, 1 July 2017 to 31 December 2022

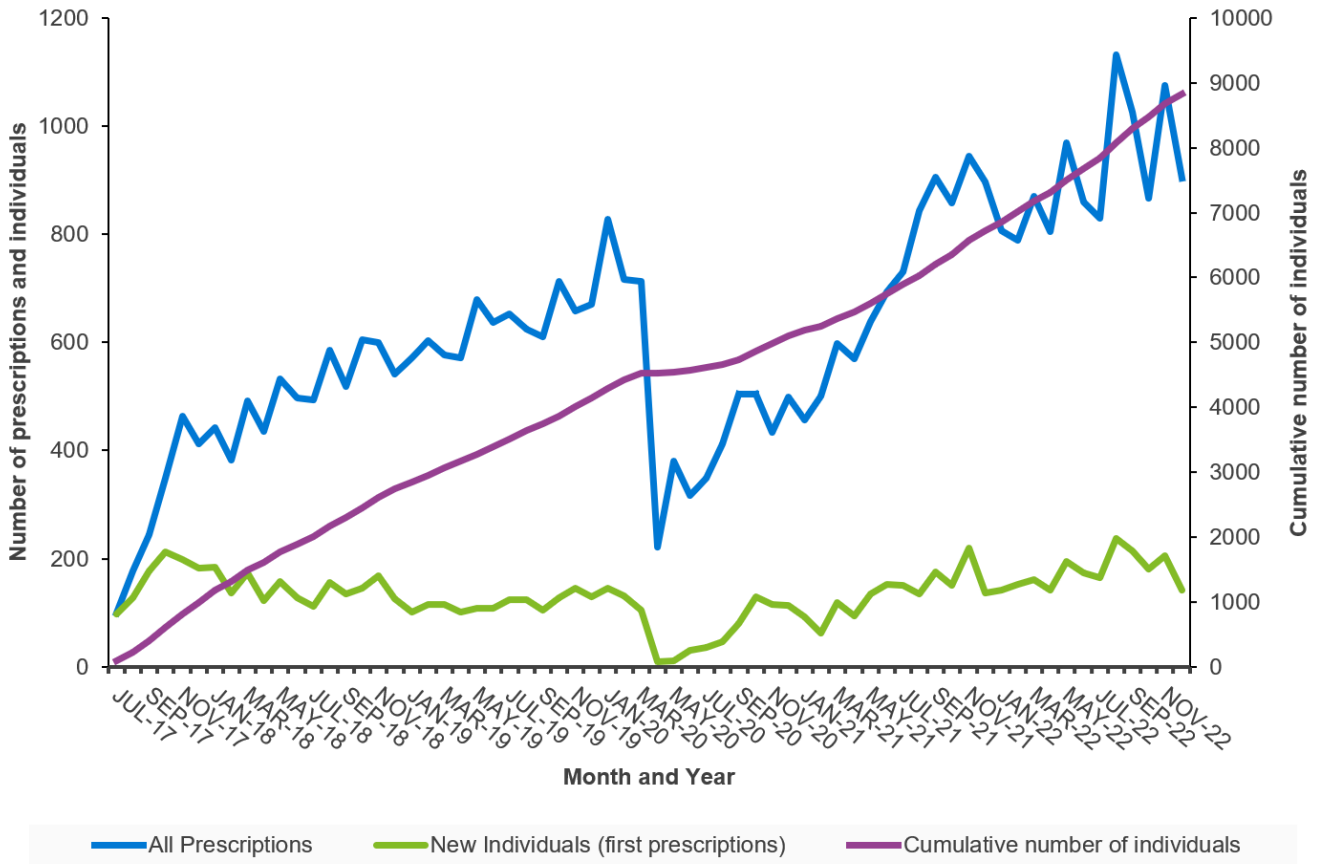


Table 1: Number of individuals prescribed HIV PrEP for the first time by gender and gender of sexual partners, Scotland, 1 July 2017 to 31 December 2022

Gender	Gender of Sexual Partners ¹	Year 1 (Jul 2017 - Jun 2018)	Year 2 (Jul 2018 - Jun 2019)	Year 3 (Jul 2019 - Jun 2020)	Year 4 (Jul 2020 - Jun 2021)	Year 5 (Jul 2021 - Jun 2022)	Year 6 (Jul 2022- Dec 2022) ²
Female	Men and women	*	*	*	*	9	*
	Men only	16	9	7	6	10	*
	Women only	*	*	0	0	*	0
	Unknown	0	*	*	*	*	*
Male	Men and women	384	321	235	257	411	218
	Men only	1,474	1,116	879	826	1,342	757
	Women only	*	7	6	7	12	8
	Unknown	*	20	42	67	125	129
Unknown/ other	*	12	9	9	18	9	
	Self-reported trans status	13	17	16	14	47	29
Total		1,896	1,492	1,185	1,177	1,932	1,142

1. Note that the gender of sexual partners relates to an individual's reported sexual history over their lifetime.

2. Year 6 is an incomplete year and the data are presented for six months from July to December 2022.

Table 2: Number of individuals prescribed HIV PrEP for the first time by NHS board of clinic, Scotland, 1 July 2017 to 31 December 2022¹

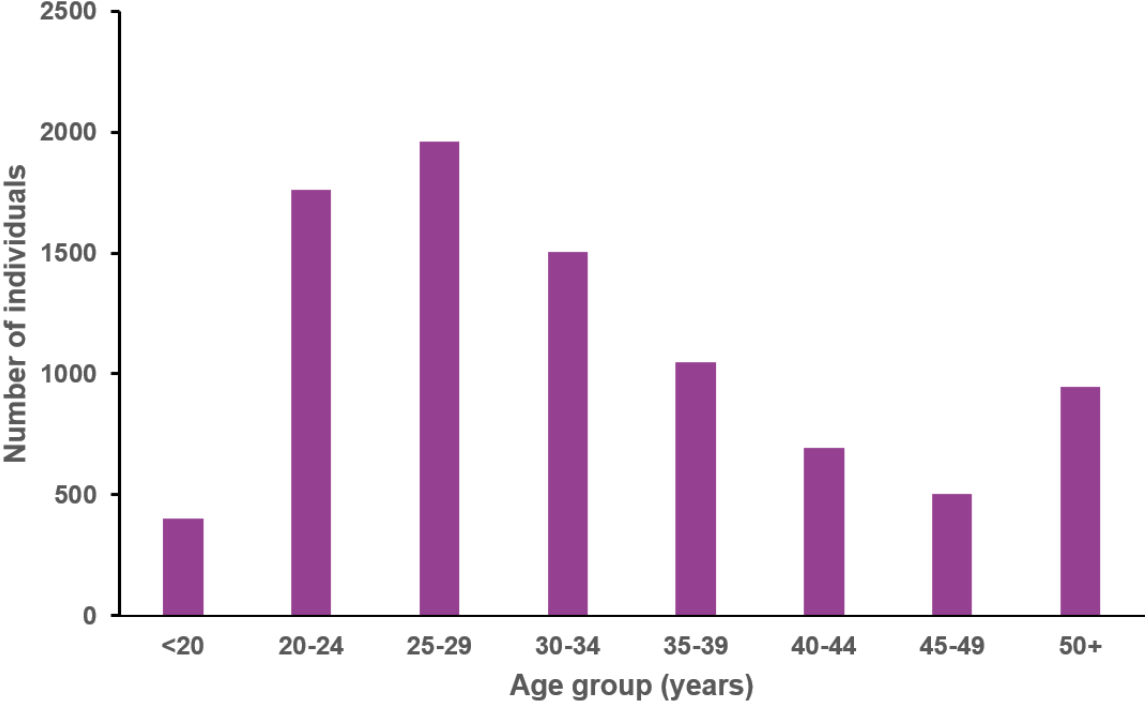
	Year 1 (Jul 2017 - Jun 2018)	Year 2 (Jul 2018 - Jun 2019)	Year 3 (Jul 2019 - Jun 2020)	Year 4 (Jul 2020 - Jun 2021)	Year 5 (Jul 2021 - Jun 2022)	Year 6 (Jul 2022 - Dec 2022) ³
Ayrshire & Arran	50	59	44	61	83	57
Borders	15	27	18	16	25	26
Dumfries & Galloway	15	34	23	22	34	28
Fife	67	67	35	27	92	48
Forth Valley	55	49	36	29	28	28
Grampian ²	161	132	122	162	232	138
Greater Glasgow & Clyde	885	495	380	375	697	291
Highland ²	43	43	39	29	37	27
Lanarkshire	46	64	43	46	136	77
Lothian	468	392	374	337	452	345
Tayside	91	130	71	73	116	77
Scotland	1,896	1,492	1,185	1,177	1,932	1,142

1. NHS treatment based on the individual's entry to programme (first prescription given).

2. Residents of NHS Orkney and NHS Shetland are included in the NHS Grampian data and residents of NHS Western Isles are included in NHS Highland data where relevant.

3. Year 6 is an incomplete year and the data are presented for six months from July to December 2022

Figure 2: Number of individuals prescribed HIV PrEP by age group (at time of first prescription), Scotland, 1 July 2017 to 31 December 2022



3.2. HIV diagnoses

- In 2022, there were 319 reports of HIV diagnoses recorded in Scotland (which includes first ever diagnoses and those previously known outwith Scotland but reported for the first time). This reflects a return to levels observed pre-pandemic: with 324 diagnoses recorded in 2019, decreasing to 269 in 2020, decreasing further to 215 in 2021. The number recorded in 2022 represent a 48% increase compared to 2021.
- Of the 317 diagnoses reported in 2022, 108 (34%) were first ever diagnoses and 209 (66%) were known to be positive previously outwith Scotland (Figure 3a). This observation indicates a shift in balance between the proportions of all HIV reports which were first ever diagnoses and those which were previously known diagnoses but recorded for the first time in Scotland.
- The proportion of previously known diagnoses has steadily increased in recent years (from 40% (127/320) in 2018 to 66% (211/319) in 2022, accounting for two thirds of all new HIV reports).
- Furthermore, between 2021 and 2022, a 57% increase in the number of individuals being recorded as living with HIV in Scotland but who were previously diagnosed elsewhere was reported (from 133 in 2021 to 209 in 2022). This increase is reflected in new reports of people living with HIV who were previously known to have HIV infection among both gay, bisexual and other men who have sex with men and heterosexual men and women. Almost two thirds (63%, 57/90) of gay, bisexual and other men who have sex with men and over 90% (84/90) of heterosexual men and women previously diagnosed had likely acquired HIV outwith the UK (Figure 3b). Of those heterosexuals previously diagnosed elsewhere, the majority were of Black-African ethnicity.
- At the same time, the proportion of all HIV reports accounted for by first ever diagnoses has decreased year on year from 60% in 2018 to 34% in 2022. Since 2017, the annual number of first ever diagnoses recorded has more than halved (decreasing from 226 first ever diagnoses in 2017 to 108 in 2022) (Table 3). Although the number of first ever diagnoses recorded in 2021 (80)

was lower than in 2022 (108), this is likely an artefact of the recovering HIV testing rates impacted by service provision and access modifications in response to the COVID-19 pandemic.

- Of 108 first ever HIV diagnoses recorded in Scotland in 2022, 45 (42%) were heterosexually acquired (25 males and 20 females), 31 (29%) were among gay, bisexual and other men who have sex with men, and four were among people who inject drugs. Information on the mode of acquisition for one quarter of individuals (26%, 28/108) diagnosed for the first time was not available (Table 3, Figure 3c). These data compare with 56% of first ever diagnoses in 2021 being recorded in gay, bisexual and other men who have sex with men and, 25% heterosexually acquired with no information available for 14% individuals) (Table 3, Figure 3c).
- This is the first time since 2007 that heterosexually acquired first ever diagnoses have exceeded both the number and proportion of those among gay, bisexual and other men who have sex with men; however, this may change following future updates on those with missing information.
- Of first ever HIV diagnoses recorded in 2022, 45% (14/31) of those among gay, bisexual and other men who have sex with men were thought to have been acquired outwith Scotland compared to 56% (25/45) among heterosexual men and women (Table 3).
- Between 2013 and 2022, the majority of first ever HIV diagnoses were among residents of Scotland's two most populated NHS boards, NHS Greater Glasgow & Clyde and NHS Lothian, accounting for over half of all first ever diagnoses recorded during this period (36% (653/1,805) and 18% (331/1,805), respectively) (Table 4, Figure 4).

Table 3: Total number of reports of first ever and previously known reports of HIV diagnoses by year of report, mode of acquisition and likely area of exposure, Scotland, 2013-2022¹

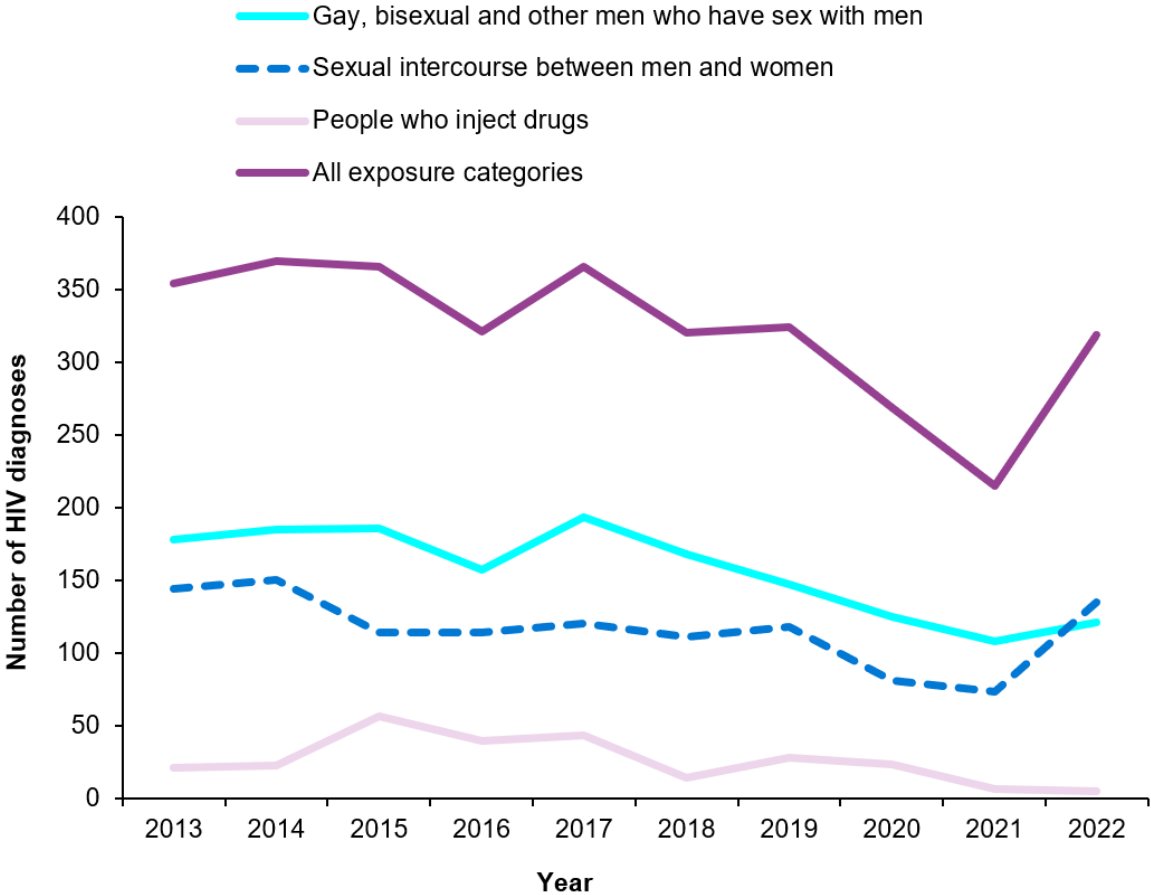
	Area of exposure ²	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Gay, bisexual and other men who have sex with men	Within Scotland	96	91	109	70	89	59	37	38	25	16
	Rest of UK	11	12	10	7	6	8	6	8	4	1
	Outwith UK	16	14	13	9	21	23	16	5	16	14
	Total first ever³	123	117	132	86	116	90	59	51	45	31
	Total newly reported in Scotland, but previously known elsewhere³	55	68	54	71	77	78	88	74	63	90
	Total³	178	185	186	157	193	168	147	125	108	121
Sexual intercourse between men and women	Within Scotland	28	35	22	35	22	30	16	11	5	20
	Rest of UK	7	4	3	4	5	5	8	2	2	0
	Outwith UK	68	48	39	33	45	38	35	18	13	25
	Total first ever³	103	87	64	72	72	73	59	31	20	45
	Total newly reported in Scotland, but	41	63	50	42	48	38	59	50	53	90

	Area of exposure ²	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	previously known elsewhere³										
	Total³	144	150	114	114	120	111	118	81	73	135
People who inject drugs	Total first ever³	17	18	52	32	34	14	26	21	4	4
	Total newly reported in Scotland, but previously known elsewhere³	4	4	4	7	9	0	2	2	2	1
	Total³	21	22	56	39	43	14	28	23	6	5
All modes of acquisition	Within Scotland	141	143	182	143	145	112	84	75	37	55
	Rest of UK	19	17	13	11	12	14	16	10	6	1
	Outwith UK	90	68	58	44	69	67	57	27	37	52
	Total first ever^{3,4}	250	228	253	198	226	193	157	112	80	108
	Total newly reported in Scotland, but previously known elsewhere^{3,4}	104	140	113	122	140	126	167	153	133	209
	Total ^{3,4}	354	368	366	320	366	319	324	265	213	317

1. Due to active follow-up, data on the Scottish National HIV database are constantly changing. Figures presented in this table may differ slightly from those previously published.

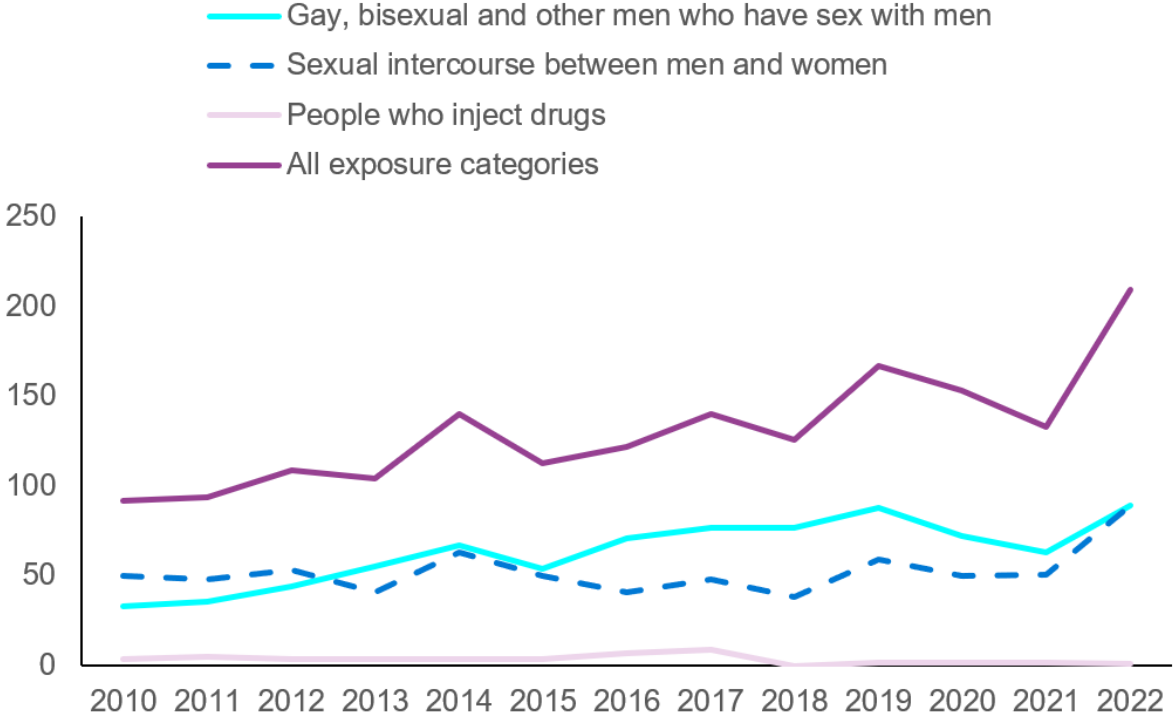
2. 'Area of Exposure' is based on information provided by the patient at the time of test or during subsequent follow-up. Prior to 2018, an individual was presumed to have been infected in Scotland if, after investigation, no evidence existed to the contrary. Diagnoses under investigation are excluded from all categories except the total. Area of exposure data only apply to first ever diagnoses.
3. Total includes diagnoses currently under investigation.
4. Total includes diagnoses outwith the three main risk groups.

Figure 3a: Number of HIV diagnoses (first ever and previously known outwith Scotland) by mode of acquisition, Scotland, 2013-2022



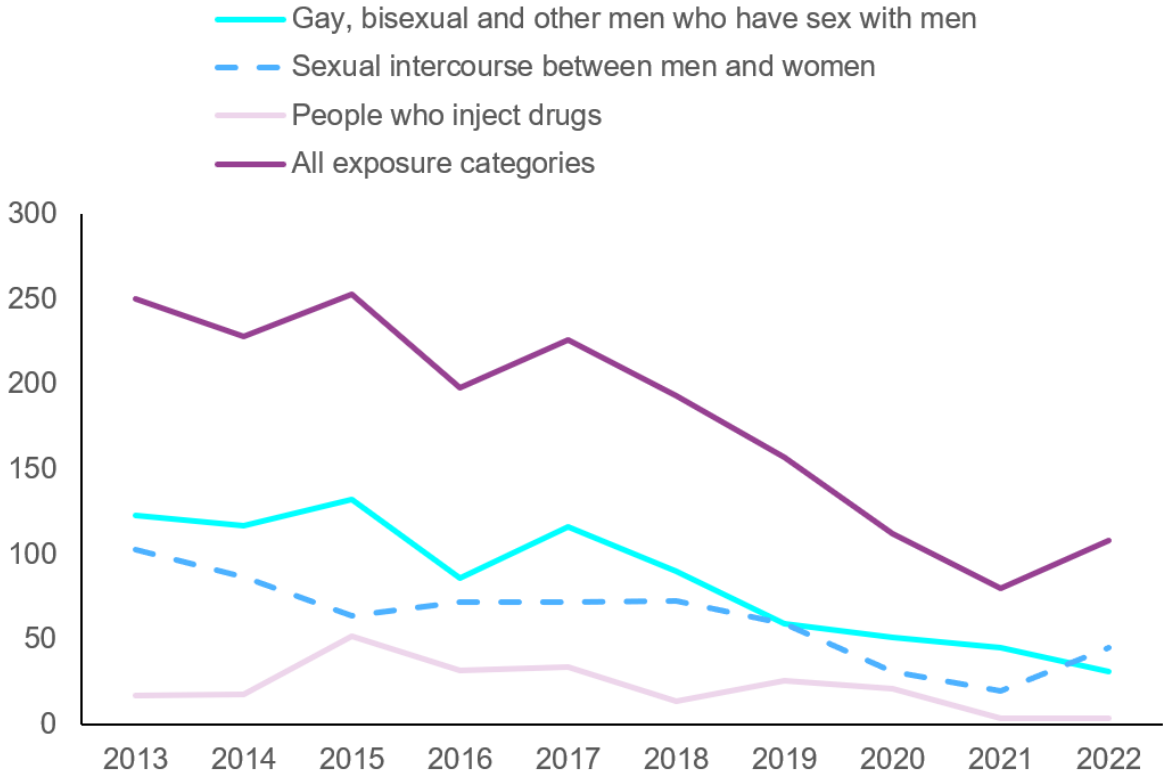
1. All modes of acquisition include diagnoses currently under investigation.
2. All modes of acquisition include those whose mode of acquisition is recorded as other or not known.

Figure 3b: Number of diagnoses previously known outwith Scotland but reported for first time by mode of acquisition, Scotland, 2013-2022



1. All modes of acquisition categories include diagnoses currently under investigation.
2. All modes of acquisition include those whose mode of acquisition is recorded as other or not known.

Figure 3c: Number of first ever diagnoses by mode of acquisition, Scotland, 2013-2022



1. All modes of acquisition include diagnoses currently under investigation.
2. All modes of acquisition include those whose mode of acquisition is recorded as other or not known.

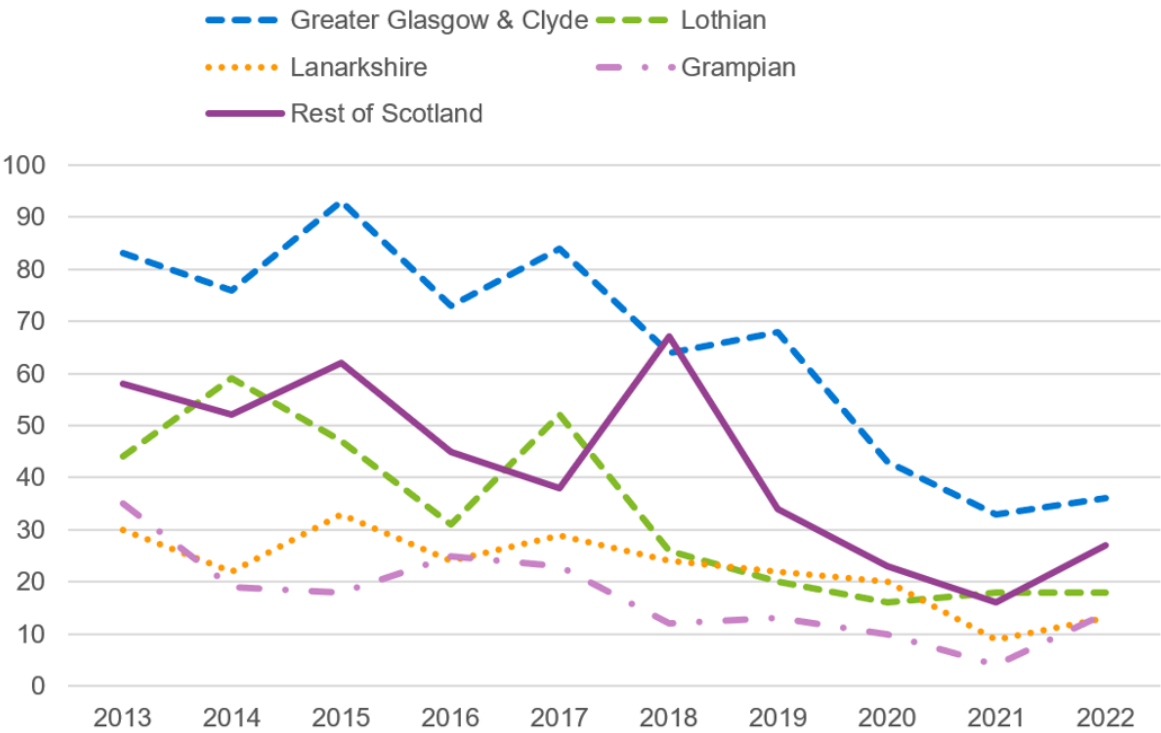
Table 4: First ever HIV diagnoses, Scotland, by year of report and NHS board¹, from 2013 to 2022

NHS board ¹	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Ayrshire & Arran	16	9	12	5	6	8	8	*	0	7
Borders	*	*	*	*	*	*	*	0	0	0
Dumfries & Galloway	*	*	*	*	*	6	*	*	0	*
Fife	6	8	11	9	9	7	8	9	5	6
Forth Valley	9	8	7	13	*	6	*	*	5	*
Grampian	35	19	18	25	23	12	13	10	*	14
Greater Glasgow & Clyde	83	76	93	73	84	64	68	43	33	36
Highland	*	9	9	5	5	11	6	*	*	6
Lanarkshire	30	22	33	24	29	24	22	20	9	13
Lothian	44	59	47	31	52	26	20	16	18	18
Tayside	19	11	15	7	11	19	6	*	*	*
Orkney/ Shetland/ Western Isles	*	0	*	*	0	*	*	0	*	*
Scotland	250	228	253	198	226	193	157	112	80	108

1. Unless otherwise specified, individuals are assigned to a specific NHS board based on the patient's postcode of residence or, where this is not known, the NHS board of treatment/care.

2. Due to active follow-up, data on the Scottish National HIV database are constantly changing and, therefore, may differ slightly from those previously published. Data for 2019, in particular, have changed as further information has become available to indicate that some diagnoses were, in fact, previously known.

Figure 4: First ever diagnoses by year of report and NHS board ¹, Scotland, 2013-2022



1. Unless otherwise specified, individuals are assigned to a specific NHS board based on the patient's postcode of residence or, where this is not known, the NHS board of treatment/care.

3.2.1. HIV in gay, bisexual and other men who have sex with men

- In 2022, the lowest number and proportion of first ever diagnoses was recorded (29%, 31/108) among gay, bisexual and other men who have sex with men in over a decade. This has also been reflected in an overall decrease in the proportion of all first ever HIV diagnoses recorded in Scotland (34%, 108/317) (Table 3, Figure 3b). In addition, the observed decrease is coupled with a shift in the balance between first ever diagnoses and diagnoses previously recorded outwith Scotland in this group.

- The majority of gay, bisexual and other men who have sex with men diagnosed for the first time are thought to have acquired their infection in Scotland (Table 3); this has been a consistent observation over the last decade and continued beyond the pandemic (59% (37/63) in 2019, 75% (38/51) in 2020, 50% (20/40) in 2021 and 52% (16/31) in 2022).
- Among those 31 men diagnosed for the first time in 2022, nine were aged 15-29 years, 13 were aged 30-49 years and nine were aged 50+. There was a median age of 38 years (range 17-70 years).

3.2.2. HIV in the heterosexual population

- During 2022, the proportion of heterosexually acquired first ever diagnoses recorded has increased to 42% (45/108) compared to 27% (19/70) observed in 2021 and is similar to the pre-pandemic proportion observed in 2019 (53%, 61/115) (Table 3). This number and proportion now exceeds that observed among gay, bisexual and other men who have sex with men for the first time since 2007 based on information available at the time of this report,
- Two thirds (67%, 90/135) of all heterosexually acquired HIV diagnoses recorded in 2022 were previously known but recorded for the first time in Scotland (Table 3). This compares to 73% (53/73) in 2021, 62% (50/81) in 2020 and 50% (59/118) in 2019.
- Overall, heterosexual acquisition continues to account for the largest proportion of diagnoses which were previously known but recorded for the first time in Scotland (Table 3). In 2022, 43% (90/209) of previously known diagnoses recorded for the first time in Scotland were acquired heterosexually and the same proportion (43%, 90/209) were attributable to gay, bisexual and other men who have sex with men.
- Consistent with previous years, in 2022, the majority (66%, 25/45) of first ever diagnoses acquired via heterosexual intercourse are likely to have been acquired outwith Scotland.

- Over the past decade, changes have been observed in the ethnicity of individuals acquiring HIV heterosexually and diagnosed for the first time in Scotland. In 2013, Black African individuals accounted for the largest proportion (approximately half) of first ever diagnoses in this group (45%, 47/103/91). From 2014 onwards (with the exception of 2018), larger proportions of White Scottish individuals were diagnosed for the first time compared to Black Africans. In 2022, 29% (13/45) of first ever diagnoses acquired heterosexually were recorded among White Scottish individuals compared to 38% (17/45) among those of Black African ethnicity.
- Among those 45 heterosexual men and women diagnosed for the first time in 2022, 10 were aged 15-29 years, 23 were aged 30-49 years and 12 were aged 50+. There was a median age of 41 years, ranging from 21 to 81 years.

3.2.3. HIV in the population of people who inject drugs

- Since June 2014, an ongoing outbreak of HIV among people who inject drugs has been recorded in the NHS Greater Glasgow & Clyde area. From that time until December 2020, 188 new diagnoses were reported among this group.^{4,5}
- Following the initial peak in 2015, however, reports of diagnoses declined annually with four first ever diagnoses recorded in 2021 and 2022, respectively. It should be noted, however, that testing among this group likely declined during the COVID-19 pandemic and, while recovering, the number diagnosed may not reflect ongoing transmission.⁶ Further detailed analyses are available in recent publications and in the previous annual report.⁴⁻⁷

3.2.4. Recently acquired HIV infection

- In 2022, data on recently acquired HIV infection were available for 83 (77%) of 108 first ever HIV diagnoses; of these individuals, nine (11%) were recorded as having acquired HIV recently (i.e. within the previous three to four months). This represents a 74% decrease (from 35 to nine) in the number of recently

acquired infections since 2019; however, it should be noted that testing rates continue to recover following the COVID-19 pandemic.

- In 2021 and 2022, recently acquired infections were recorded in small numbers (five or fewer) of gay, bisexual and other men who have sex with men, heterosexuals and people who inject drugs. By comparison, in 2020, of 18 individuals who had acquired HIV, nine were gay, bisexual and other men who have sex with men, five heterosexuals and fewer than five people who inject drugs had acquired HIV recently. (Table 5).
- Among gay, bisexual and other men who have sex with men, the number of recent infections identified has decreased year on year since 2017 (from 30 in 2017 to five or fewer in 2021 and 2022) (Table 5). Indeed, since the introduction of HIV PrEP in July 2017, the proportion of gay, bisexual and other men who have sex with men undergoing antibody avidity testing and identified as having acquired HIV in the previous three to four months has decreased from 31% in 2017 to 17% in 2022. When interpreting these data, it is important to recognise the overall decrease in HIV testing among gay, bisexual and other men who have sex with men (as well as other population groups) during the pandemic; however, testing rates are recovering while the number of recently acquired infections remains low (Table 5).
- The median age was 42 years (range 17 to 65 years) among gay, bisexual and other men who have sex with men with recently acquired HIV infection.
- Since 2018, between 10% and 20% of HIV infections acquired through sexual intercourse between men and women were recorded as being recently acquired (Table 5). Noting that the actual numbers each year are usually small (<5), the lowest proportion (12%) was recorded in 2021. In 2022, the median age was 28 years (range 25 to 34 years).
- Among people who inject drugs, while the annual number of first ever diagnoses is relatively small compared to other groups at risk, there is evidence of transmission linked to the outbreak in NHS Greater Glasgow & Clyde from June 2014 to December 2020.^{4,5} Sexual transmission, in addition to

unsafe injecting practices, may also have contributed to the spread of HIV infection among people who inject drugs during this outbreak. In 2022, of those tested, there were no diagnoses indicating a recently acquired infection.

Table 5: Number and proportion of recently acquired HIV infections by year of report and mode of acquisition, Scotland, 2018-2022¹

Year	Mode of acquisition	Gay, bisexual and other men who have sex with men	Sexual intercourse between men and women	People who inject drugs	Other/Not known	Scotland
2018	Diagnoses tested for antibody avidity ²	77	64	14	10	165
	Recently acquired	18	11	2	0	31
	Proportion recent	23%	17%	14%	0%	19%
2019	Diagnoses tested for antibody avidity ²	52	47	24	12	135
	Recently acquired	17	5	11	2	35
	Proportion recent	33%	11%	46%	33%	11%
2020	Diagnoses tested for antibody avidity ²	48	29	14	8	99
	Recently acquired	9	4	5	0	18
	Proportion recent	19%	14%	36%	0%	18%
2021	Diagnoses tested for antibody avidity ²	42	17	2	9	70
	Recently acquired	5	2	1	1	9
	Proportion recent	12%	12%	50%	13%	13%
2022	Diagnoses tested for antibody avidity ²	25	33	1	24	83
	Recently acquired	4	5	0	0	9
	Proportion recent	17%	15%	0%	0%	11%

1. Note that new diagnoses are tested for recency using the antibody avidity test; this is performed on new diagnoses when a sample is available. This test was rolled out across all NHS boards from April 2014.

2. The antibody avidity test is used on specimens from those who are not previously known to be HIV positive (i.e. first ever diagnoses). The data presented includes only those infections considered to be new after active follow-up by PHS.

3.2.5. Late diagnoses

- Among individuals living with HIV, there is evidence that some people are being diagnosed at a late stage of HIV infection. For some, this can be many years after becoming infected with the virus and when they may have progressed to advanced HIV disease or Acquired Immune Deficiency Syndrome (AIDS). Those diagnosed late have an **increased risk of dying within one year of diagnosis**. Please see the definitions of late and very late diagnoses in the glossary on page 54 and the footnotes to table 6.
- In 2022, 24 of 108 (22%) first ever diagnoses were made at a late stage of infection, 16 (67%) of which were at a very late stage, that is with advanced HIV disease.
- Data recorded for 2020 and 2021 during the COVID-19 pandemic should be interpreted with caution as these may be an under-estimate due to i) capacity and resourcing issues resulting in some NHS boards being unable to return attendance data for 2020 and 2021 and/or ii) changes to the way in which care was delivered during the height of the COVID-19 pandemic resulting in some recording omissions. Nonetheless, the proportion of first ever diagnoses recorded as late in 2022 is the lowest observed since 2015. Comparisons prior to 2015 are limited given there was no antibody avidity testing established to identify recently acquired infections (i.e. those infections acquired within the last three to four months).
- While acknowledging the small numbers involved, since 2018, higher proportions of late (and very late) HIV diagnoses were evident among those who acquired HIV through heterosexual sexual intercourse compared to gay, bisexual and other men who have sex with men and people who inject drugs with the exception of 2020, during the COVID-19 pandemic, when similar proportions for these two groups were observed (Table 6).
- The number and proportion of people living with HIV diagnosed late and very late varies by ethnicity, Overall, the numbers of late/very late diagnoses have decreased since 2018 across all ethnicity groups; however, individuals of

White ethnicity have accounted for the largest proportion of late/very late diagnoses over this period (Figures 6a and 6b). In 2022, 15 late/very late diagnoses were recorded among individuals of White ethnicity compared to five among Black-Africans. Furthermore, of those 24 individuals diagnosed late and very late, nine (38%) and 14 (58%), respectively, were presumed to have acquired HIV in Scotland.

Table 6: Number and proportion of first ever HIV diagnoses made at a late and a very late stage of infection by mode of acquisition category and year of report, Scotland, 2018-2022^{1,2}

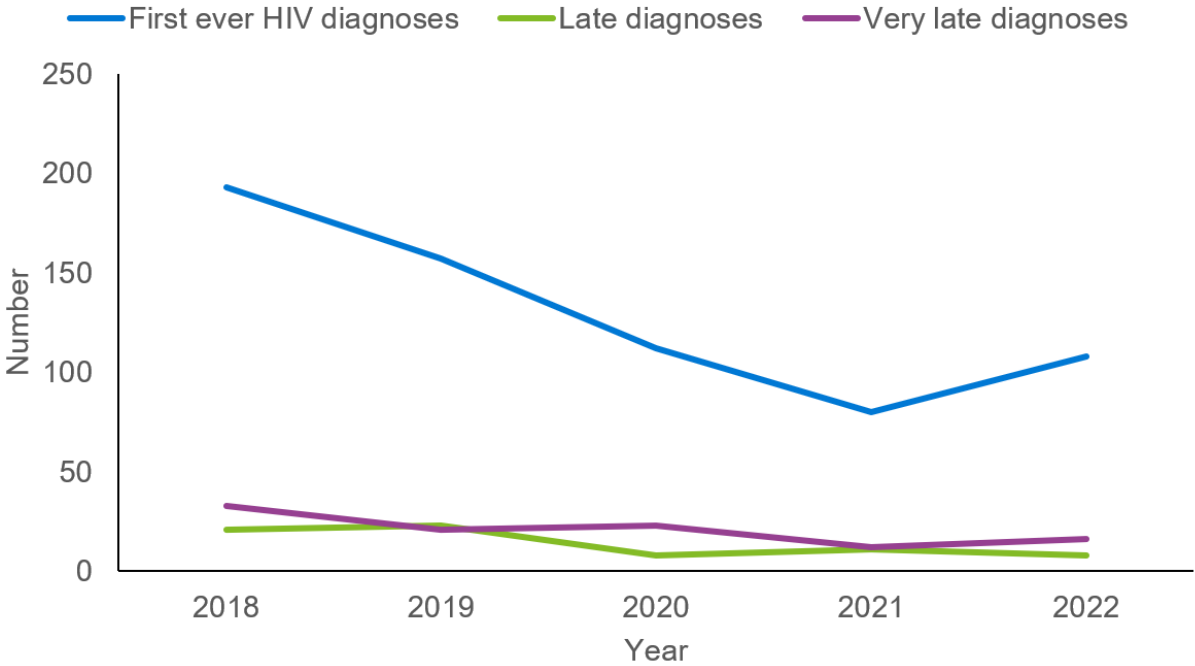
	Mode of acquisition	Gay, bisexual and other men who have sex with men	Sexual intercourse between men and women	People who inject drugs	Other/Not known	Scotland
2018	No. of new diagnoses	90	73	14	16	193
	No. of late diagnoses	11	7	2	1	21
	No. of very late diagnoses	11	17	2	3	33
	% of late/very late diagnoses	24%	33%	29%	25%	28%
2019	No. of new diagnoses	59	59	26	13	157
	No. of late diagnoses	9	6	3	5	23
	No. of very late diagnoses	3	15	2	1	21
	% of late/very late diagnoses	20%	36%	19%	46%	28%
2020	No. of new diagnoses	51	31	21	9	112
	No. of late diagnoses	4	2	1	1	8
	No. of very late diagnoses	11	10	0	2	23
	% of late/very late diagnoses	29%	39%	5%	33%	28%

	Mode of acquisition	Gay, bisexual and other men who have sex with men	Sexual intercourse between men and women	People who inject drugs	Other/Not known	Scotland
2021	Number of new diagnoses	45	20	4	11	80
	Number of late diagnoses	8	2	0	1	11
	Number of very late diagnoses	6	4	0	2	12
	% of late/very late diagnoses	31%	30%	0%	27%	29%
2022	Number of new diagnoses	31	45	4	28	108
	Number of late diagnoses	2	6	0	0	8
	Number of very late diagnoses	5	6	0	5	16
	% of late/very late diagnoses	23%	27%	0%	18%	22%

1. Late HIV diagnosis is defined by a CD4 count of <350 cells per cubic millimetre recorded within 90 days of HIV diagnosis, excluding specimens recorded as "recent" infections on antibody avidity testing and those previously diagnosed HIV positive outwith Scotland.

2. Very late diagnosis is defined by <200 cells per cubic millimetre recorded within 90 days of HIV diagnosis, excluding specimens recorded as "recent" infections on antibody avidity testing and those previously diagnosed HIV positive outwith Scotland.

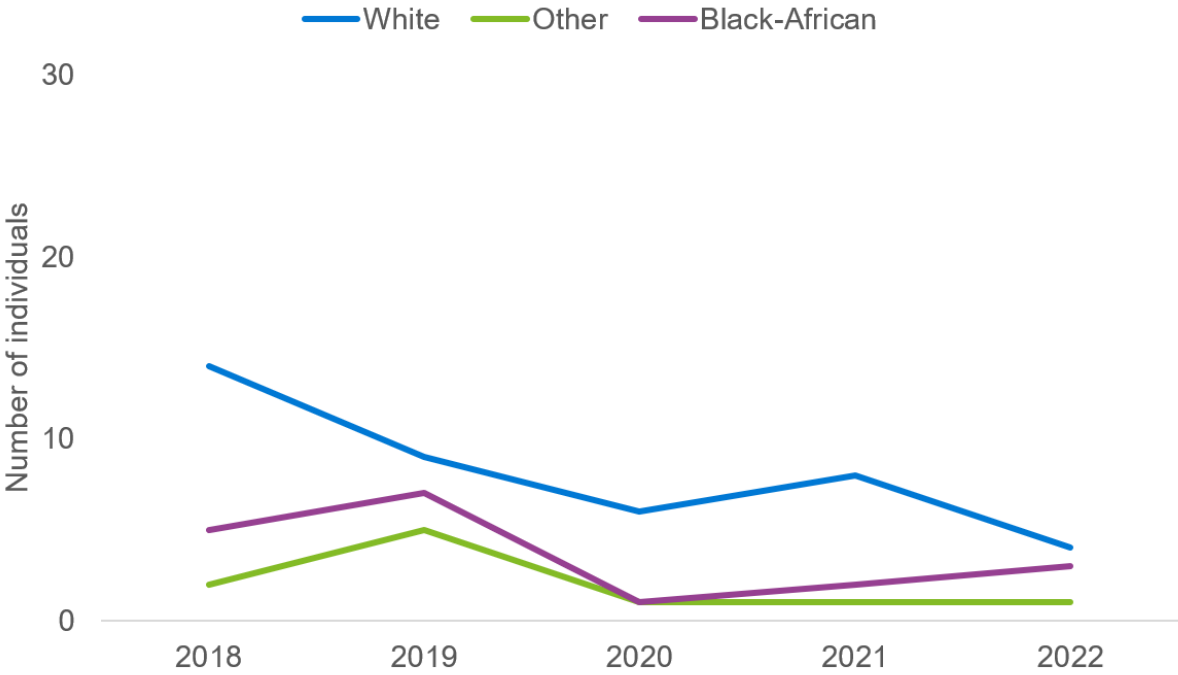
Figure 5: Number of i) first ever HIV diagnoses, ii) late diagnoses, and iii) very late diagnoses, Scotland, 2018-2022



1. Late HIV diagnosis is defined by a CD4 count of <350 cells per cubic millimetre recorded within 90 days of HIV diagnosis, excluding specimens recorded as "recent" infections on antibody avidity testing and those previously diagnosed HIV positive outwith Scotland.

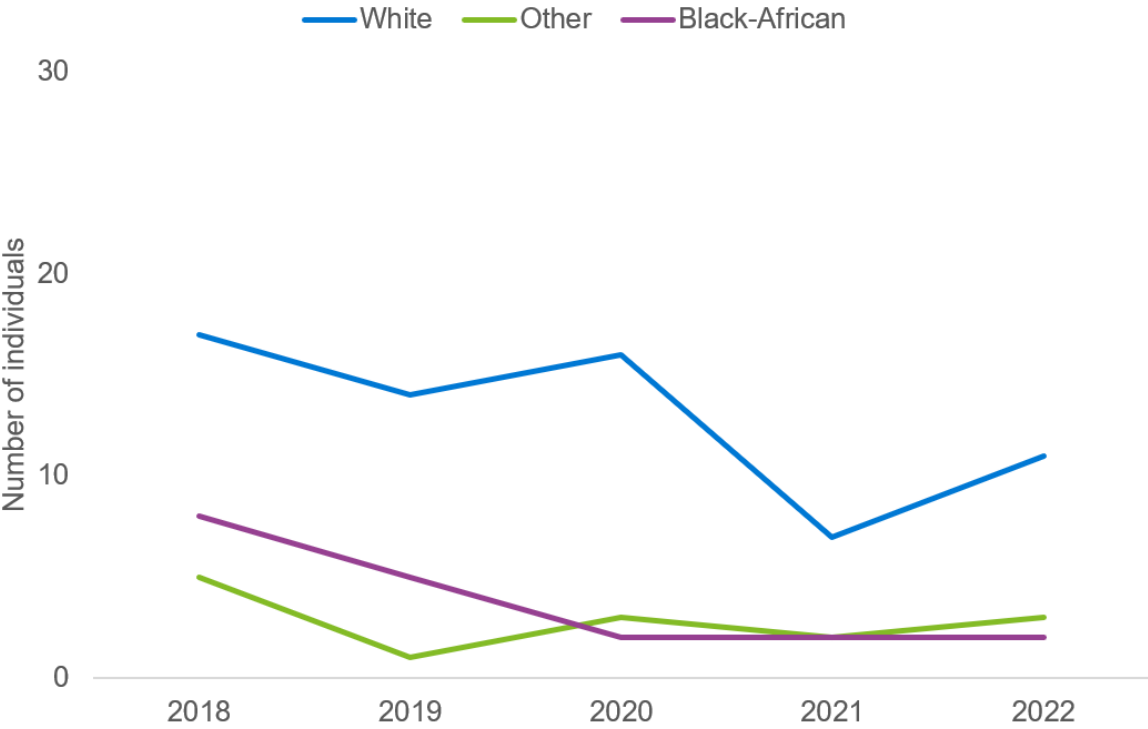
2. Very late diagnosis is defined by <200 cells per cubic millimetre recorded within 90 days of HIV diagnosis, excluding specimens recorded as "recent" infections on antibody avidity testing and those previously diagnosed HIV positive outwith Scotland. These are a subset of the late diagnoses.

Figure 6a: Number of late HIV diagnoses by ethnicity, Scotland, 2018-2022



1. Late HIV diagnosis is defined by a CD4 count of <350 cells per cubic millimetre recorded within 90 days of HIV diagnosis, excluding specimens recorded as "recent" infections on antibody avidity testing and those previously diagnosed HIV positive outwith Scotland.

Figure 6b: Number of very late HIV diagnoses by ethnicity, Scotland, 2018-2022



1. Very late diagnosis is defined by <200 cells per cubic millimetre recorded within 90 days of HIV diagnosis, excluding specimens recorded as "recent" infections on antibody avidity testing and those previously diagnosed HIV positive outwith Scotland. These are a subset of the late diagnoses.

3.3. HIV treatment and care

- HIV and sexual health services were extensively redesigned during and after the COVID-19 pandemic and some elements of service provision are delivered remotely online, impacting both the way in which people access HIV testing and those living with HIV access treatment and care. In addition, services are now facing further pressures, for example as a result of the observed increase in gonorrhoea diagnoses in Scotland between 2019 and 2022 (rising by 49% from 3,776 to 5,641 diagnoses), full details of which are available in a report published in March 2023.⁸
- As services recover and we move to a more endemic phase of COVID-19, attention returns to building on the success of Scotland achieving the UNAIDS Fast Track 90:90:90 targets set for 2020 (first achieved in 2018) and focusing on achieving the 95:95:95 targets set for 2030:
 - 95% of those living with HIV are diagnosed;
 - 95% of those diagnosed are receiving treatment;
 - 95% of those on treatment have a suppressed viral load (defined as <200 copies per millilitre of blood).⁹
- To assess Scotland's progress against the first of these targets, a Bayesian multi-parameter evidence synthesis (MPES) model developed by the University of Cambridge and the UK Health Security Agency (UKHSA) (formerly Public Health England) drawing on multiple surveillance, demographic and survey datasets provides estimates of undiagnosed HIV infection.¹⁰ The second and third targets can be assessed using surveillance data from Scotland's national HIV database.
- At the end of December 2022, a total of 6,150 people were recorded on the national HIV database as being diagnosed and living with HIV in Scotland; the majority (59%, 3,786) were resident in NHS Greater Glasgow and Clyde and NHS Lothian (Table 7). Furthermore, gay, bisexual and other men who have sex with men account for the largest proportion of this cohort (48%, 2,939). By

comparison, 40% (2,454) of people diagnosed and living with HIV are thought to have acquired HIV heterosexually, 7% (433) via injecting drug use and 3% (176) through other routes (e.g. mother to child transmission (Table 7)).

Table 7: Number of individuals diagnosed and living with HIV by NHS board and mode of acquisition, Scotland, to 31 December 2022

NHS board ¹	Gay, bisexual and other men who have sex with men	Sexual intercourse between men and women	People who inject drugs	Other/Not known	Total
Ayrshire & Arran	90	50	7	21	168
Borders	24	20	6	9	59
Dumfries & Galloway	53	34	*	*	100
Fife	117	110	12	53	292
Forth Valley	112	63	*	*	190
Grampian	230	276	16	24	546
Greater Glasgow & Clyde	885	817	174	74	1950
Highland	74	83	*	22	180
Lanarkshire	266	232	42	33	573
Lothian	928	576	126	43	1673
Tayside	152	182	35	21	390
Orkney/Shetland/Western Isles	8	11	*	*	29
Scotland	2939	2454	433	324	6150

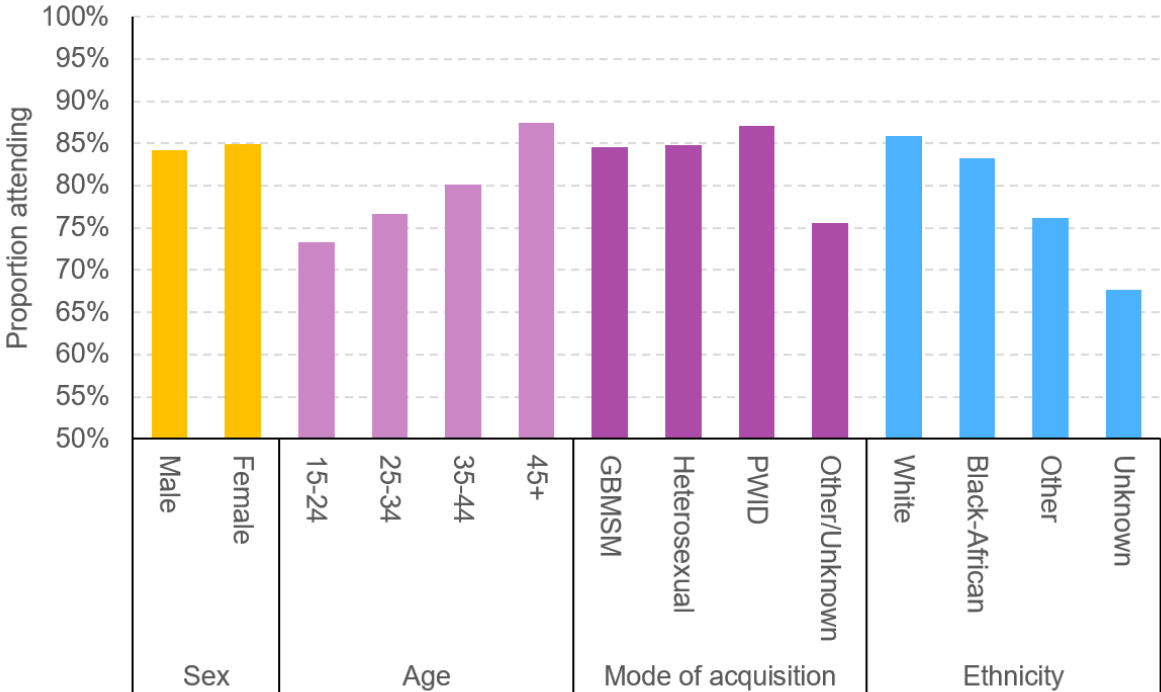
1. Unless otherwise specified, individuals are assigned to a specific NHS board based on the patient's postcode of residence or, where this is not known, their NHS board of treatment/care.

2. Individuals diagnosed and living with HIV who had not engaged with HIV care for 10 years or more were excluded from this analysis.

- According to 2019 MPES modelling data, 7% of individuals living with HIV outwith London remain undiagnosed (thereby indicating that 93% of individuals living with HIV have been diagnosed). We have applied this proportion to the data in Scotland. Therefore, in addition to the 6,150 people diagnosed and living with HIV in Scotland, it is estimated that approximately 500 more individuals may be infected with HIV but are unaware of this, thus indicating an estimated cohort size of 6,600 people living with HIV in Scotland.¹⁰ In collaboration with the UK Health Security Agency (UKHSA), work is currently ongoing to review and update these estimates, drawing on data from each of the four home countries.
- Of those 6,150 diagnosed individuals living with HIV as at 31 December 2022, 5,189 (84%) were reported to PHS as having attended for HIV care between 1 July 2021 and 31 December 2022 (i.e. having a viral load result recorded within the past 18 months). This compares with 72% of diagnosed individuals attending for HIV care as at 31 December 2021. It should be noted, however, that while HIV and sexual health services continue to recover following the COVID-19 pandemic, the proportion of those living with HIV who have attended for HIV care to the end of December 2022 may still be an underestimate due to changes to the way in which individuals prefer to access care (e.g. fewer in-person attendances and more telephone reviews without blood being taken for viral load testing which may result in some recording omissions). In collaboration with HIV service providers, further data review is ongoing to assess the impact of COVID-19 restrictions on HIV specialist services during 2020/2021 and beyond.
- While overall post-pandemic in-person attendance for HIV care is recovering, data for selected characteristics of attendees provide an indication of key groups who are currently attending services (Figure 7). Please note eligible attendees exclude individuals who are known to i) have died, ii) have left Scotland and/or iii) have not attended within the past 10 years from the cumulative number of diagnosed reports ever recorded.

- While similar proportions of males and females (approximately 85%) are attending services as at 31 December 2022, it is evident that the proportion of attendees increases with age group (73% of 15-24 year olds attending versus 87% of those aged 45+). Attendance is proportionally similar for gay, bisexual and other men who have sex with men and heterosexual men and women (85%) and slightly higher among people who inject drugs (87%) which may be, in part, a reflection of the targeted outreach provision implemented by NHS Greater Glasgow & Clyde in response to the ongoing HIV outbreak among this group.¹¹⁻¹³ Attendance among those in the other or unknown risk groups is lower at 76%. Ethnicity data indicate that 86% and 83% of White and Black-African individuals, respectively, are diagnosed and living with HIV in Scotland are engaged with services (Figure 7) while 76% of individuals of other ethnicity groups are currently attending.

Figure 7: Proportion of adults diagnosed and living with HIV attending HIV specialist services for care by selected characteristics: Scotland, to 31 December 2022

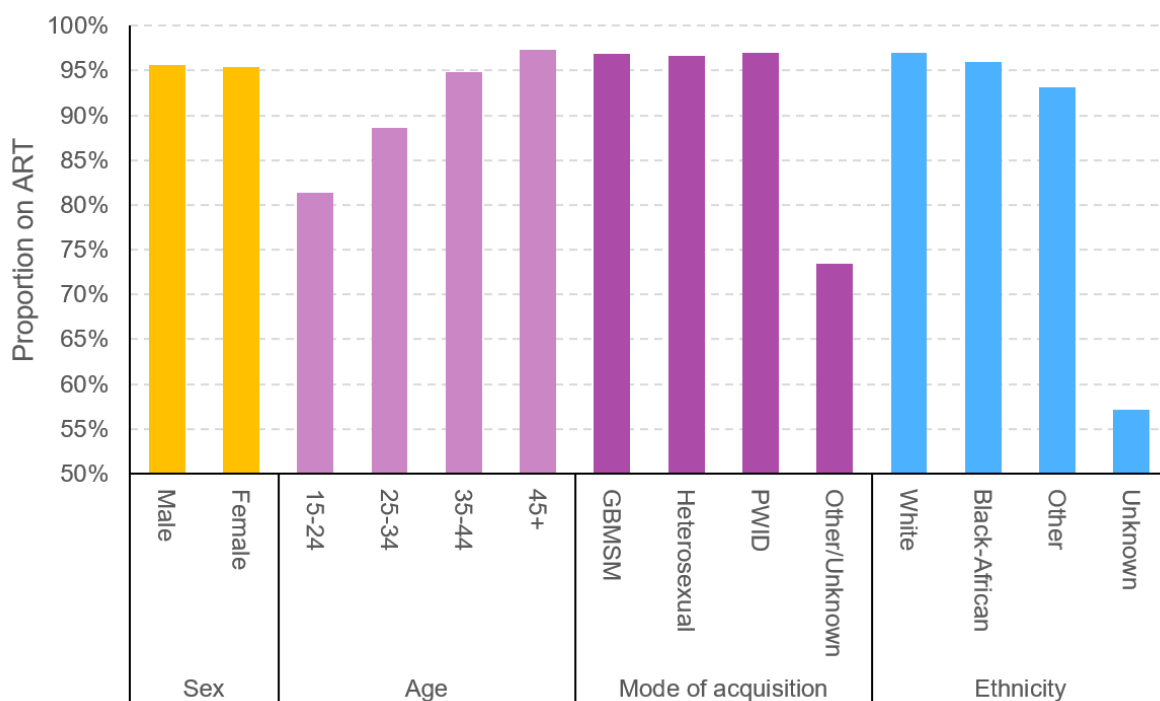


1. Please note y-axis does not begin at 0%.

- There are continued high levels of treatment and care being provided to those diagnosed and living with HIV in Scotland. As at 31 December 2022, 98% (5,065/5,189) of individuals attending for HIV care in Scotland were receiving antiretroviral therapy (ART); this is a similar proportion (97%, 4,511/4,641) to that recorded at the end of 2021.⁷ Furthermore, of the 5,065 individuals in receipt of ART, 97% (4,926) had a suppressed viral load (less than 200 copies/ml) and 93% (4,729) had an undetectable viral load (less than 50 copies/ml).
- From additional epidemiological data, there would appear to be little difference in the proportion of individuals receiving ART by i) gender (96% among males versus 95% among females), mode of acquisition (98% among gay, bisexual and other men who have sex with men and 96% among people who inject drugs versus 97% among heterosexuals and those exposed via

other/unknown routes), and iii) ethnicity (97% among those of White ethnicity, 96% among Black-Africans and 93% among those from other ethnicity groups) (Figure 8). Of note are some differences in those receiving ART according to age group. Larger proportions of those in the older age groups are in receipt of ART (97% among those aged 45+ and 95% among those aged 35-44 years) compared to the younger age groups (89% among 35-34 year olds and 81% among those aged 15-24 years).

Figure 8: Proportion of adults diagnosed and living with HIV receiving antiretroviral treatment (ART) by selected characteristics: Scotland, to 31 December 2022

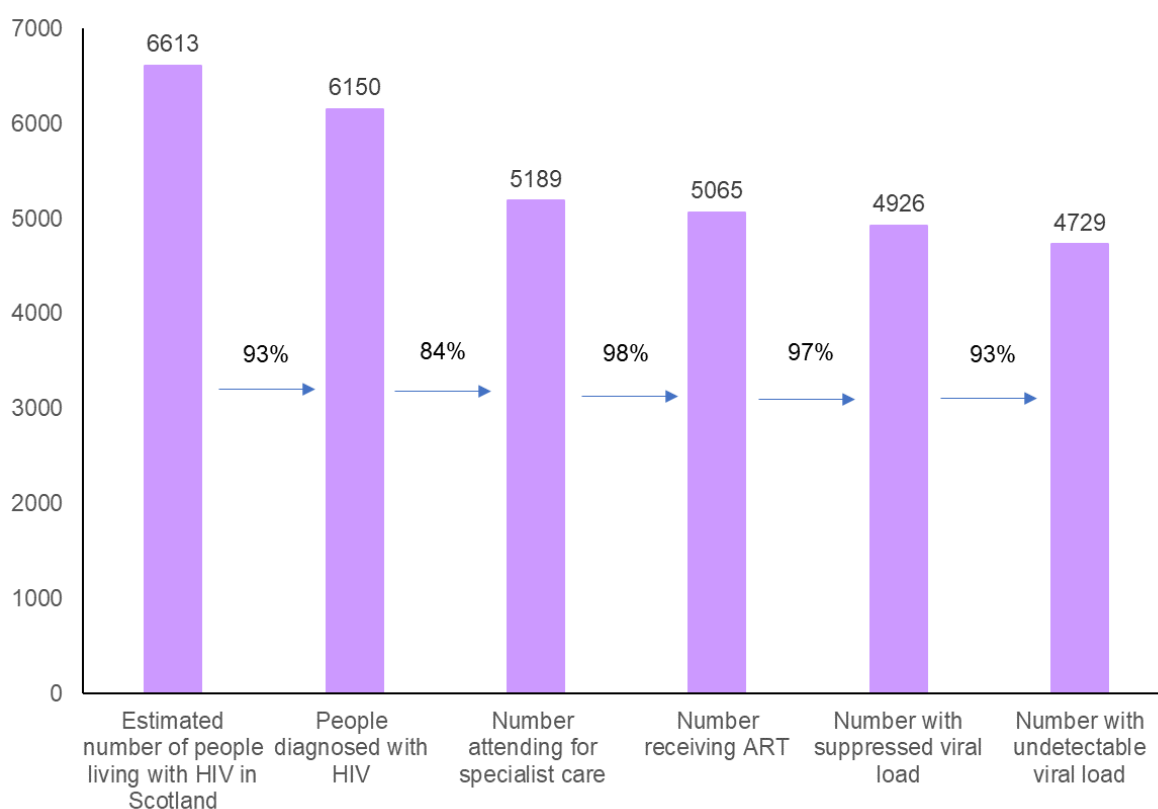


1. Please note y-axis does not begin at 0%.

- In summary, Scotland is making progress towards achieving the 95:95:95 global targets set for 2030 (Figure 9). At the end of December 2022, 93% (6,150) of the estimated cohort of 6,613 people living with HIV in Scotland had been diagnosed and, of these diagnosed individuals, 82% (5,065/6150) were recorded as receiving treatment between 1 July 2021 and 31 December 2022

(i.e. the previous 18 months) and, of those on treatment, 97% (4,926/5,065) had a suppressed viral load.

Figure 9: Number of individuals (i) estimated to be living with HIV;^{1,2} (ii) diagnosed and living with HIV; (iii) attending for specialist HIV care;³ (iv) receiving antiretroviral therapy (ART), (v) with a suppressed viral load, and (vi) with an undetectable viral load to 31 December 2022⁴



1. 7% undiagnosed based on Bayesian multi-parameter evidence synthesis (MPES) model used to estimate the number of undiagnosed people living with HIV in the UK in 2019.¹⁰

2. This estimate is calculated by subtracting the individuals known to have died, those who are known to have left Scotland and those who have not

attended within the past 10 years from the cumulative number of diagnosed reports ever recorded.

3. Individuals alive, not known to have left Scotland, and recording at least one attendance within the previous 18 months as at 31 December 2022.

4. Individuals with a viral load of less than 50 copies per millilitre of blood.

3.4. Non-attendance for HIV treatment and care

- The number of individuals who are considered to be not attending for HIV clinical services is defined as those who are not known to have died or left Scotland, but have attended services within the last 10 years. At the end of 2022, of the diagnosed cohort of 6,150 individuals, 961 (16%) were no longer engaged with HIV clinical services and, of these individuals, one quarter (25%, 245) had not attended for up to two years, a further 382 (40%) for 3-4 years, 235 (24%) for 5-6 years and 99 (10%) for 7-9 years. Those not attending HIV clinical services were spread across all mainland NHS boards.
- Of those not attending, almost half (47%, 454/961) were gay, bisexual and other men who have sex with men, 39% (372) were heterosexual men and women (168 men and 204 women), 6% (56) were people who inject drugs, for 4% (34) another mode of acquisition was recorded and for 5% (45) the mode of acquisition was not known.
- A third of those not attending HIV clinical services (34%, 322/961) were of White-Scottish ethnicity with approximately one fifth (22%, 207) of Black-African ethnicity, 20% (188) of White-Other ethnicity, 11% (105) of White-Other British ethnicity and the remaining 10% (139) from other ethnic groups.

3.5. Outcomes of infection

- Data held on Scotland's national HIV database can be linked with data on deaths held by the National Records of Scotland to identify any individuals diagnosed with HIV who have died.
- Between 2013 and 2017, the annual average number of deaths (from any cause and not necessarily associated with HIV infection) among those diagnosed with HIV was 52. The annual number of deaths subsequently increased between 2018 to 2020 (with 76 deaths recorded in 2020 which coincided with the COVID-19 pandemic) before falling again in 2021 and 2022. In 2022, of the 58 individuals who died, four were aged 20-39 years, 26 were aged 40-59 years, 25 were aged 60-79 years and three were aged 80 and over. It should be noted that the 58 deaths recorded in 2022 represent 0.9% of the diagnosed cohort.

4. Conclusions

- HIV PrEP continues to be an effective prevention intervention and continues to be in demand among among gay, bisexual and other men who have sex with men is high. The highest monthly average number of individuals accessing the service for their first prescription since the programme began in July 2017 was recorded between July and December 2022. Work is ongoing to address the under-representation of some groups who could benefit from PrEP and to ensure equity of access to the PrEP service.¹⁴
- With the recovery of HIV and sexual health services following the COVID-19 pandemic and a near return to pre-pandemic HIV testing levels, the overall number of first ever diagnoses increased between 2021 and 2022. Although the number of first ever diagnoses among gay, bisexual and other men who have sex with men continued its downward trend, notably, this was exceeded for the first time since 2007 by the number of heterosexually acquired first ever diagnoses which may impact action both locally and nationally.

- Of note is the 57% increase observed in the number of diagnoses previously known elsewhere but reported for the first time in Scotland between 2021 and 2022. Furthermore, this increase is reflected in records of diagnoses among both gay, bisexual and other men who have sex with men and heterosexual men and women. Epidemiological data indicate that almost two thirds of gay, bisexual and other men who have sex with men and over 90% of heterosexual men and women previously diagnosed had likely acquired HIV outwith the UK.
- Of those heterosexuals previously diagnosed elsewhere, the majority were of Black-African ethnicity and, therefore, may have come to Scotland from high HIV prevalence countries. Further investigation is required to understand the potential impact of migration policy and the response to the Ukraine conflict on HIV infection in Scotland which would ensure access to treatment and services and educational interventions are tailored appropriately.
- Following the peak of the outbreak of HIV among people who inject drugs in NHS Greater Glasgow & Clyde in 2015, the downward trend in first ever diagnoses has stabilised in 2022. The effectiveness of interventions implemented at the height of the outbreak underline the importance of continuing to promote HIV testing, delivery of treatment and care, provision of harm reduction measures and awareness raising initiatives to this particularly vulnerable group.¹¹⁻¹³ The impact of outreach treatment services may be reflected in the >95% uptake rate of ART among those individuals who are diagnosed and inject drugs.
- There is evidence of ongoing transmission as recent infections (albeit in small numbers) continue to be detected. It is encouraging, however, that the number of recently acquired HIV infections (those acquired in the previous three to four months) has decreased overall in 2022, and, notably, among gay, bisexual and other men who have sex with men. Work to widen access to HIV PrEP to other groups who could benefit forms one key part of the programme to eliminate HIV transmission in Scotland line with the Scottish Government proposal, published in December 2022.¹⁵

- Of concern are individuals who continue to be diagnosed at a late, or very late, stage of infection, when long term outcomes of antiretroviral therapy are less assured than with early treatment. Although fewer people overall were diagnosed late in 2022 compared to recent years, over half were considered to be at a very late stage of infection. As post-pandemic services continue to recover, testing remains a key public health priority for all risk groups to i) reduce the number of undiagnosed infections, ii) identify individuals early in HIV infection when they can benefit from effective antiretroviral therapy, and iii) reduce the potential for onward transmission. The challenge is to re-establish, and improve, opportunities for testing in primary care settings and across all medical specialities, when people who have conditions associated with an increased rate of HIV prevalence (termed 'Indicator conditions'), in addition to providing a range of options for people to seek testing for themselves, including home testing and online postal self-sampling (OPSS) options.
- HIV service delivery underwent major change during the COVID-19 pandemic with many components being provided online. As we move to an endemic phase of COVID-19, some of these components have been retained in response to service users' preferences and service delivery pressures. Capturing all relevant information for surveillance purposes is a challenge and may be reflected in the lower attendance rate observed in 2022; however, through collaboration with HIV services and efforts to modernise national HIV surveillance, work is ongoing to maximise accurate and complete data.
- Although the proportion of those individuals living with HIV attending for care remains lower than pre-pandemic levels, uptake of antiretroviral therapy among those engaged with services is very high (98%) with a similarly high proportion (93%) showing evidence of an undetectable viral load. This is evidence of treatment as prevention in action. Undetectable equals untransmissible (U=U), and thus, onward transmission is prevented.
- Work is underway to establish the proportion of those no longer under care in Scotland who have moved away and are receiving care elsewhere, and the proportion who remain in Scotland but are not receiving care.

- The effects of changes in sexual and healthcare seeking behaviour during the COVID-19 pandemic are presenting themselves in different ways. Of note, is the significant increase observed in 2021/22 of gonorrhoea diagnoses in Scotland, initially among gay, bisexual and other men who sex with men and latterly among, particularly young, heterosexual men and women.⁸ Work is ongoing to better understand the impact of behavioural changes on sexual health.
- Building on the success of Scotland achieving the UNAIDS Fast Track 90:90:90 targets set for 2020, sights are now set on achieving the 95:95:95 targets set for 2030 (95% of those living with HIV are diagnosed, 95% of those diagnosed are receiving treatment, and 95% of those on treatment have an suppressed viral load).⁹ The data presented indicate that Scotland is making progress in this regard.
- These global targets form one part of the vision to eliminate HIV transmission in Scotland by 2030 as set out in the Scottish Government HIV Transmission Elimination Proposal, published in December 2022.¹⁵ Work is now underway between Scottish Government, Public Health Scotland, NHS boards, local authorities and other key partners to use all a number of resources, including epidemiological data and intelligence to end HIV transmission in Scotland by tailoring the approach to address the key issues affecting Scotland.

5. References

1. Health Protection Scotland and Information Services Division. Implementation of HIV PrEP in Scotland; First Year Report. Health Protection Scotland, National Services Scotland: Glasgow, February 2019. Available from:

<https://www.hps.scot.nhs.uk/web-resources-container/implementation-of-hiv-prep-in-scotland-second-year-report/>

2. Health Protection Scotland and Information Services Division. Implementation of HIV PrEP in Scotland; Second Year Report. Available from:

<https://www.hps.scot.nhs.uk/web-resources-container/implementation-of-hiv-prep-in-scotland-second-year-report/>

3. Estcourt C, Yeung A, Nandwani R et al. Population-level effectiveness of a national HIV preexposure prophylaxis programme in MSM. *AIDS* 2021; 35 (4): 665-673.

4. Ragonnet-Cronin, M., Jackson C, Bradley-Stewart A et al., Recent and Rapid Transmission of HIV Among People Who Inject Drugs in Scotland Revealed Through Phylogenetic Analysis. *J Infect Dis*, 2018; 217(12): p. 1875-1882.

<https://academic.oup.com/jid/article/217/12/1875/4931169?login=true>

5. McAuley A, Palmateer N, Goldberg DJ et al. Re-emergence of HIV related to injecting drug use despite a comprehensive harm reduction environment: a cross-sectional analysis. *Lancet HIV*, 2019. Published Online April 9, 2019.

<https://www.sciencedirect.com/science/article/abs/pii/S2352301819300360>

6. Trayner KMA, McAuley A, Palmateer NE et al. *Drug Alcohol Depend* 2022; 232: 109263.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8802039/>

7. Public Health Scotland. HIV infection in Scotland: update to 31 December 2021. Available from:

HIV in Scotland: update to 31 December 2021 - HIV in Scotland - Publications - Public Health Scotland

8. Public Health Scotland. Gonorrhoea infection in Scotland. Available from:

Gonorrhoea infection in Scotland - Gonorrhoea infection in Scotland - Publications - Public Health Scotland

9. UNAIDS, Joint United Nations Programme on HIV/AIDS. Understanding Fast-Track: accelerating action to end the AIDS epidemic by 2030.

https://www.unaids.org/sites/default/files/media_asset/201506_JC2743_Understanding_FastTrack_en.pdf

10. Presanis AM, Harris RJ, Kirwan PD et al. Trends in undiagnosed HIV prevalence in England and implications for eliminating HIV transmission by 2030: an evidence synthesis model. Lancet 2021;

[https://doi.org/10.1016/S2468-2667\(21\)00142-0](https://doi.org/10.1016/S2468-2667(21)00142-0)

11. Metcalfe R, Ragonnet-Cronin M, Bradley-Stewart A et al. From Hospital to the Community: Redesigning the Human Immunodeficiency Virus (HIV) Clinical Service Model to Respond to an Outbreak of HIV Among People Who Inject Drugs. J Infect Dis, 2020: 222; 5 (S410-S419).

<https://doi.org/10.1093/infdis/jiaa336>

12. Trayner KMA, Palmateer NE, McAuley A et al. Evaluation of the scale-up of HIV testing among people who inject drugs in Scotland in the context of an ongoing HIV outbreak. Int J Drug Policy, 2021; 96: 103304.

<https://doi.org/10.1016/j.drugpo.2021.103304>

13. Grimshaw C, Boyd L, Smith M et al. Evaluation of an inner city HIV pre-exposure prophylaxis tailored to the needs of people who inject drugs. HIV Med, 2021.

<https://doi.org/10.1111/hiv.13181>

14. Estcourt C, Sugden G et al. Developing PrEP care models for diverse needs in Scotland: report of a multi-sector workshop, March 2023. Available from:

<https://www.waverleycare.org/resources/developing-prep-care-models-for-diverse-needs-in-scotland-report-of-a-multi-sector-workshop/>

15. Scottish Government. Ending HIV transmission in Scotland by 2030. Available from:

<https://www.gov.scot/publications/ending-hiv-transmission-scotland-2030/>

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7. Glossary

Human Immunodeficiency Virus (HIV)

Human immunodeficiency virus (HIV) is a virus which attacks the immune system. HIV is found in the body fluids of an untreated infected person. This includes semen, vaginal and anal fluids, blood and breast milk. HIV can be transmitted through condomless vaginal and anal sex, sharing needles, syringes or other injecting equipment and transmission from mother to baby during pregnancy, birth or breastfeeding. Untreated HIV infection progresses to advanced HIV disease or acquired immune deficiency syndrome (AIDS) which is defined by a number of clinical conditions. HIV is a chronic, lifelong infection and when managed successfully by antiretroviral therapy (ART) individuals can live a near normal life and cannot transmit the virus. Abbreviated to HIV.

Gay, bisexual and other men who have sex with men

Men reporting having male sexual partners.

People who inject drugs

People with a history of injecting drug use.

Antibody avidity testing

This is an adapted antibody test which measures the avidity or strength of antibody binding. A low HIV antibody avidity result indicates lower strength of HIV-specific antibody suggesting an infection acquired within the past three to four months. The antibody avidity test is used on specimens from those who are not previously known to be HIV positive (i.e. new infections). Antibody avidity testing was rolled out nationally in 2014, with the first full year of data available in 2015.

Antiretroviral therapy (ART)

Antiretroviral therapy is a combination of drugs used in the treatment of HIV. Abbreviated to ART, the regimen usually consists of three or more drugs, in a single pill, which acts to reduce the amount of virus in the body and stop the progression of HIV disease. Abbreviated to ART.

HIV pre-exposure prophylaxis (PrEP)

HIV pre-exposure prophylaxis is a novel prophylactic biomedical intervention which comprises of two HIV antiretroviral drugs which has been shown to reduce significantly the risk of sexual HIV acquisition among those at highest risk.

Abbreviated to HIV PrEP.

NHS board

Unless otherwise specified, individuals are assigned to a specific NHS board based on the patient's postcode of residence or, where this is not known, their NHS board of referral.

Mode of acquisition

Individuals are assigned to a mode of acquisition category based on a clinical assessment of the most likely route through which they were exposed to the virus and subsequently became infected.

8. Contact

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9. Further information

Further information and data for this publication are available from the [publication page](#) on our website.

The next release of this publication will be Autumn 2023.

10. Rate this publication

Let us know what you think about this publication via the link at the bottom of this [publication page](#) on the PHS website.

11. Appendices

11.1. Appendix 1 – Background information

Human immunodeficiency virus (HIV) is a virus which attacks the immune system. HIV is a chronic, lifelong infection which can be managed successfully by antiretroviral therapy (ART). HIV is found in the body fluids of an untreated infected person. This includes semen, vaginal and anal fluids, blood and breast milk. HIV can be transmitted through condomless vaginal and anal sex, sharing needles, syringes or other injecting equipment and transmission from mother to baby during pregnancy, birth or breastfeeding. Untreated HIV infection progresses to advanced HIV disease or acquired immune deficiency syndrome (AIDS) which is defined by a number of clinical conditions. There is no vaccine or cure for HIV but the current treatment stops the virus from replicating and damaging the body's immune system. Progression to advanced HIV disease or acquired immune deficiency syndrome (AIDS), which is defined by a number of clinical conditions, can be controlled by good adherence to ART. People diagnosed with HIV and on ART are able to live long and healthy lives.

11.2. Appendix 2 – Publication metadata

Publication title

HIV in Scotland: update to 31 December 2022

Description

This release provides data relating to confirmed laboratory diagnoses of HIV reported to PHS from diagnostic and specialist testing laboratories. Information on clinical follow-up (i.e. attendance at HIV specialist clinics, uptake and response to antiretroviral therapy) is obtained from the HIV Clinical Leads for NHS boards across Scotland. This is combined with additional laboratory data to enhance the surveillance of HIV infection. This is a summary of the diagnosed HIV cohort in Scotland at 31 December 2022. In addition, data are presented on the uptake of HIV pre-exposure prophylaxis (a novel prophylactic biomedical intervention which comprises of two HIV antiretroviral drugs which has been shown to reduce significantly the risk of sexual HIV acquisition among those at highest risk) from July 2017 to December 2022.

Theme

Infections in Scotland

Topic

HIV diagnosis, treatment and care and HIV PrEP uptake

Format

PDF and Excel workbook

Data source(s)

HIV diagnostic and reference laboratories, HIV clinicians, NaSH

Date that data are acquired

21 August 2023

Release date

26 September 2023

Frequency

Annual

Timeframe of data and timeliness

Data from 01 January 2013 to 31 December 2022 (six months in arrears is considered timely publication of annual data given data validation required). Additional months required for quality control checks to be completed.

Continuity of data

HIV surveillance has been in place since 1985 when the first diagnostic antibody tests became available.

Revisions statement

These data are not subject to planned major revisions.

Revisions relevant to this publication

None

Concepts and definitions

Human immunodeficiency virus (HIV)

HIV is a virus which attacks the immune system. HIV is a chronic, lifelong infection which can be managed successfully by antiretroviral therapy (ART). HIV can be transmitted through condomless vaginal and anal sex, sharing needles, syringes or other injecting equipment and transmission from mother to baby during pregnancy, birth or breastfeeding. Untreated HIV infection progresses to advanced HIV disease or acquired immune deficiency syndrome (AIDS) which is defined by a number of clinical conditions. Treatment is effective and good adherence to therapy means individuals can live long, healthy lives.

More information is available at: <https://www.hps.scot.nhs.uk/a-to-z-of-topics/hiv/>

Relevance and key uses of the statistics

HIV diagnoses, treatment and care data are essential for the monitoring of key outcome indicators outlined in the Scottish Government Sexual Health and Blood Borne Virus Framework (2015-2020). In August 2021, Scottish Government published an interim document, [Reset and Rebuild - sexual health and blood](#)

borne virus services: recovery plan. A review of the Framework is underway and will be published in due course. Associated epidemiological data help to inform policy and service development.

Accuracy

The PHS national HIV database is under continual review and modification as additional information becomes available. As a result, published data - primarily within the last year – are subject to change. Data are presented to clinicians at regular internal meetings and missing data are sought from the HIV Clinical Leads on a quarterly basis from their local clinical datasets.

Completeness

The PHS national HIV database is under continual review and modification as additional information becomes available. As a result, published data - primarily within the last year – are subject to change. Some data items will be incomplete, primarily exposure category, for individuals diagnosed towards the end of the reporting quarter; these data will be updated when information becomes available.

Comparability

Public Health England data can be found at:

<https://www.gov.uk/government/publications/hiv-in-the-united-kingdom>

Accessibility

It is the policy of Public Health Scotland to make its web sites and products accessible according to published guidelines. More information on accessibility can be found on the [PHS website](#).

Coherence and clarity

Tables and figures are available via the [PHS website](#).

Value type and unit of measurement

Number of diagnoses of HIV infection reported by NHS laboratories across Scotland. Enhanced surveillance of clinical outcomes of infection and treatment. Uptake of HIV PrEP.

Disclosure

The PHS protocol on Statistical Disclosure is followed.

Official Statistics designation

Yes

UK Statistics Authority Assessment

No

Last published

29 November 2022

Next published

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Date of first publication

1985

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Date form completed

17 September 2023

11.3. Appendix 3 – Early access details

Pre-Release Access

Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", PHS is obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days. Shown below are details of those receiving standard Pre-Release Access.

Standard Pre-Release Access:

Scottish Government Health Department

NHS Board Chief Executives

NHS Board Communication Leads

Early Access for Management Information

These statistics will also have been made available to those who needed access to 'management information' (i.e. as part of the delivery of health and care)

Early Access for Quality Assurance

These statistics will also have been made available to those who needed access to help quality assure the publication.

11.4. Appendix 4 – PHS and Official Statistics

About Public Health Scotland (PHS)

PHS is a knowledge-based and intelligence driven organisation with a critical reliance on data and information to enable it to be an independent voice for the public's health, leading collaboratively and effectively across the Scottish public health system, accountable at local and national levels, and providing leadership and focus for achieving better health and wellbeing outcomes for the population. Our statistics comply with the **Code of Practice for Statistics** in terms of trustworthiness, high quality and public value. This also means that we keep data secure at all stages, through collection, processing, analysis and output production, and adhere to the **'five safes'**.