

## **Epidemiology of HIV in NSW residents newly diagnosed with HIV infection up to 31 December 2013**

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## 1. Summary

Since the mid-1980s HIV infection has been a notifiable condition under the *NSW Public Health Act*. HIV reference laboratories are required to report all confirmed HIV infections to NSW Health using national case definitions. Laboratories must also send a "Notification of HIV infection" form to the diagnosing doctor to inform them their patient was confirmed to be HIV-infected and seek detailed demographical, clinical and HIV risk behaviour information about the patient. Doctors are required to complete the epidemiological information on the case form and forward it to NSW Health. Data are entered into the NSW HIV database and analysed to monitor and understand the epidemic and provide evidence based information for public health action. The Notification of HIV infection form was modified so that in 2013 for the first time treatment information and viral load would be reportable at the time of diagnosis. In this report we include notifications on NSW residents (based on reported postcode of residence at the time of diagnosis) newly diagnosed with HIV up to 31 December 2013.

In 2013, 354 NSW residents were newly diagnosed with HIV infection and notified to NSW Health, which was a 4% increase on the previous five year mean for 2008 to 2012 (n=341). The age-standardised rate of new diagnoses per 100,000 in 2013 was 4.92 per 100,000. The age-standardised rate of new diagnoses has been largely stable for more than ten years.

Of 354 NSW residents newly diagnosed with HIV in 2013, 10 (3%) were aged 0 to 19 years, 101 (29%) were 20 to 29 years, 90 (25%) were 30 to 39 years, 89 (25%) were 40 to 49 years and 64 (18%) were 50 years and over. Compared with the 2008 to 2012 five year mean, in 2013 the number of new diagnoses declined in 30 to 39 year olds (33%) and rose in those 50 years and over (13%). In 2013 the age group specific rates per 100,000 of new diagnoses were similar for the age groups 20 to 29, 30 to 39 and 40 to 49 years.

In 2013, 92% of NSW residents newly diagnosed with HIV were male, similar to the 2008 to 2012 five year mean (91%).

In 2013, 2.3% of all NSW residents newly diagnosed were reported as being Aboriginal people, the same proportion as for the five year mean 2008 to 2012. However among women newly diagnosed with HIV in 2013, the proportion who were Aboriginal people (11.1%) was about four-fold the proportion of the NSW female population estimated to be Aboriginal people (2.5%, Census 2011).

In 2013, 54% of NSW residents newly diagnosed with HIV infection had been born in Australia, similar to the 2008 to 2012 five year mean (56%).

In 2013, 125 (35%) of the people newly diagnosed resided in South Eastern Sydney (SES) Local Health District (LHD), similar to the 2008 to 2012 five year mean (123 people). A further 90 (25%) of the 2013 new diagnoses resided in Sydney LHD, also similar to the 2008-2012 five year mean (88 people) (Figure 7). The age-standardised rates in SES and Sydney LHDs were very similar and much higher than the rates for all other LHDs. In the other LHDs, the main observed increases in the number of new diagnoses in 2013 compared with the 2008 to 2012 five year mean, were in South Western Sydney (SWS) LHD and Hunter New England (HNE) LHD. Most LHDs other than SES and Sydney LHD had similar age-standardised rates.

Of 354 NSW residents newly diagnosed with HIV in 2013, 278 (79%) were reported to be men who have sex with men (MSM), 61 (17%) reported heterosexual contact as their HIV risk exposure, 8 (2%) reported being a person who injected drugs (PWID), 5 (1%) had an unknown or unreported HIV risk

exposure, one case was acquired through mother to child transmission (MTC) that had occurred overseas and one case was acquired through an 'other' type of exposure. This was a similar pattern compared to the 2008 to 2012 five year period (MSM 78%; Hetero-sex 17%; PWID 3%; and MTC, 'other' and 'unknown' each 0%).

Independent of where born, of all 354 people newly diagnosed in 2013, 225 (64%) likely acquired HIV in Australia, 75 (21%) likely acquired HIV overseas and 54 (15%) were unknown.

Among all 354 NSW residents newly diagnosed in 2013, 105 (30%) reportedly tested HIV negative within 12 months of diagnosis, the same proportion as for the 2008 to 2012 five year period. In 2013 27% of NSW residents newly diagnosed reportedly had never had a HIV test prior to diagnosis, slightly more than 21% for 2008 to 2012. Among the 278 MSM newly diagnosed in 2013, 102 (37%) reportedly tested HIV negative within 12 months of diagnosis and 17% had never had a HIV test prior to diagnosis, similar to that for MSM between 2008 to 2012.

Among all 354 NSW residents newly diagnosed in 2013, 215 (61%) had evidence of late diagnosis, the same proportion with evidence of late diagnosis between 2008 and 2012. Evidence of late diagnosis was defined as a CD4 count less than 350 cells/ $\mu$ L or an AIDS defining illness within three months of diagnosis, in the absence of a laboratory confirmed negative HIV test in the 12 months prior to diagnosis.

General medical practitioners unspecialised in HIV (GP non-ART prescriber) made 139 (39%) of the new diagnoses in NSW residents in 2013 and they referred two thirds of these people to sexual health clinics for ongoing management of HIV. Doctors in sexual health clinics (SHC) made 102 (29%) of the new diagnoses and retained most of these clients. General medical practitioners specialised in HIV and specially registered to prescribe antiretroviral therapy (GP s100) made 55 (16%) of the new diagnoses in 2013 and retained most of these clients. Doctors within hospital settings made 45 (13%) of the new diagnoses and retained or referred most of these within the hospital setting. A few (9) people were diagnosed by immigration services and most were referred to sexual health clinics for follow up.

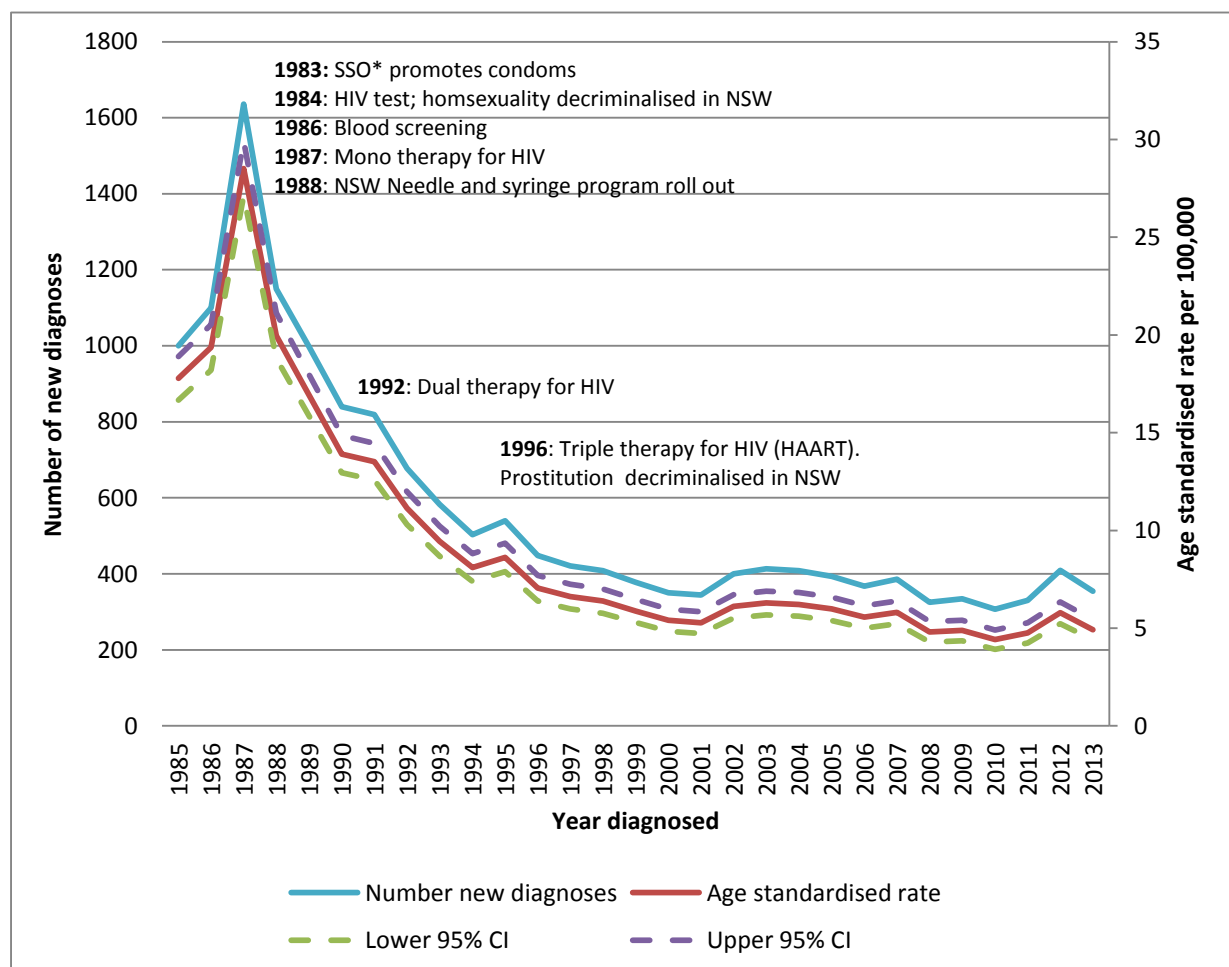
Data on antiretroviral therapy (ART) commencement, CD4 count and viral load at least six months post diagnosis are now collected via prescribing doctors who complete a standardised HIV six-monthly follow up form. Of the 354 NSW residents newly diagnosed in 2013, 311 (88%) had a six-monthly follow-up form completed by their prescribing doctors at the time of this analysis. Of these 311 new diagnoses in 2013, 49% (153) had commenced ART within three months of diagnosis and 60% (186) had commenced ART within six months of diagnosis. Of the 311 newly diagnosed persons for whom six monthly follow-up forms were available, 301 had results available for CD4 count at diagnosis. Of those with a CD4 count less than 200 cells/ $\mu$ L at diagnosis, 84% had commenced ART within three months of diagnosis and a further eight per cent had commenced ART within six months of diagnosis. Of those with a CD4 count at diagnosis between 201 and 500 cells/ $\mu$ L, 58.3% (84) had commenced ART within three months of diagnosis and a further 11.8% (17) had commenced ART within six months of diagnosis. Of the 213 newly diagnosed people in 2013 on ART at six-monthly follow up, 200 had post ART viral load results available. Post ART viral load was undetectable ( $\leq$ 50 copies/ml) in 165 people (82.5%).

## 2. Time trend of the HIV epidemic in NSW

The number of NSW residents newly diagnosed with HIV infection peaked in 1987 at 1636 notifications (28.5 new diagnoses per 100,000 population), a couple of years after the first test for HIV became widely available. In the ensuing ten years notifications of new diagnoses decreased considerably (Figure 1). By 1997, the year after triple therapy antiretroviral regimens became available to treat HIV infection, the new diagnoses count was down to 424, and since then the annual new diagnoses count has not exceeded this level, with 2010 having the lowest new diagnoses count (307) to date. The rise in cases in 2012 (n=409) was predominantly among men who have sex with men resident in inner metro Sydney (and South Western Sydney) with a higher proportion in early stage infection (see Figure 7, 13 and 26).

In 2013, 354 NSW residents were newly diagnosed with HIV infection and notified to NSW Health, which was a 4% increase on the previous five year mean for 2008 to 2012 (n=341) (Figure 1). The age-standardised rate of new diagnoses per 100,000 in 2013 was 4.92 per 100,000. The age standardised rate of new diagnoses has been stable for more than ten years, with the only significant rise being between the rates for the years 2010 and 2012 (Figure 1 and Table 1).

**Figure 1. Number and age standardised rate per 100,000 of NSW residents newly diagnosed with HIV infection 1 January 1985 to 31 December 2013**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014  
Rates were age-standardised using the Australian population as at 30 June 2001.

**Table 1. Number and age standardised rate per 100,000 (95% Confidence Intervals [CI]) of NSW residents newly diagnosed with HIV infection 1 January 1985 to 31 December 2013**

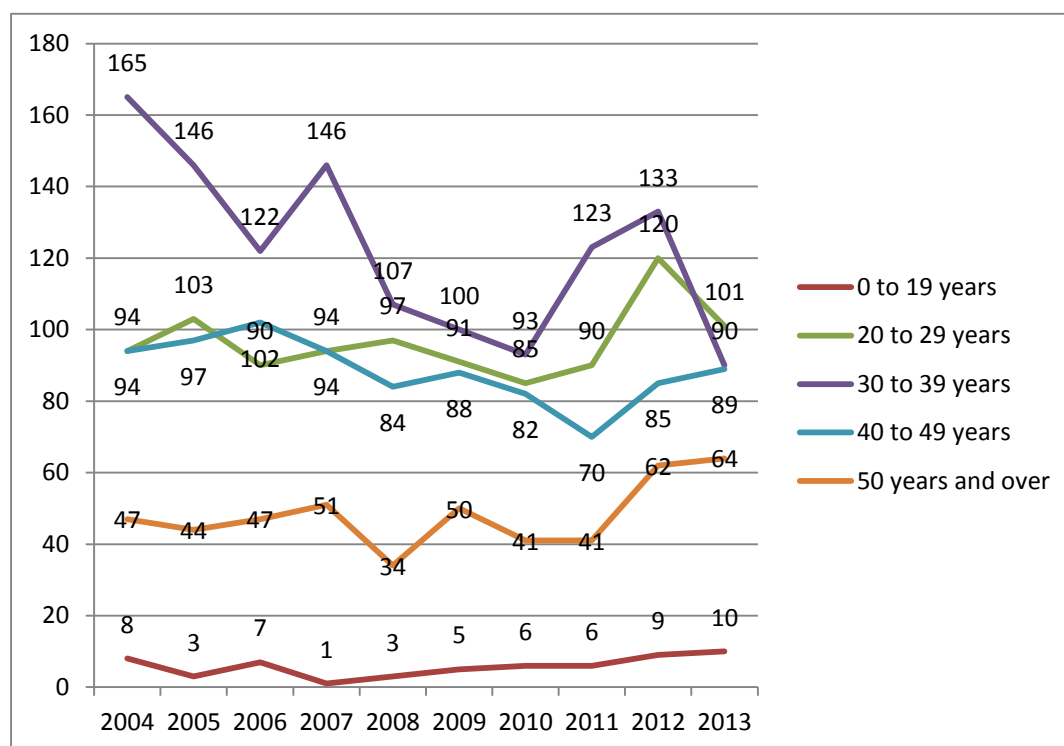
Year diagnosed	Number new HIV diagnoses	Age standardised rate	Lower 95% CI	Upper 95% CI
1985	1000	17.78	16.67	18.90
1986	1100	19.37	18.21	20.52
1987	1636	28.52	27.12	29.91
1988	1150	19.96	18.79	21.13
1989	997	16.90	15.84	17.96
1990	840	13.91	12.96	14.85
1991	819	13.52	12.58	14.45
1992	678	11.14	10.30	11.99
1993	583	9.45	8.68	10.22
1994	503	8.10	7.39	8.81
1995	540	8.62	7.89	9.35
1996	448	7.04	6.39	7.70
1997	421	6.62	5.98	7.25
1998	408	6.38	5.76	7.00
1999	378	5.87	5.28	6.47
2000	350	5.41	4.84	5.97
2001	344	5.28	4.72	5.84
2002	400	6.12	5.52	6.72
2003	413	6.28	5.68	6.89
2004	408	6.22	5.61	6.82
2005	393	5.99	5.39	6.58
2006	368	5.57	5.00	6.14
2007	386	5.80	5.22	6.38
2008	325	4.81	4.28	5.33
2009	334	4.88	4.36	5.41
2010	307	4.41	3.91	4.90
2011	330	4.76	4.25	5.28
2012	409	5.78	5.22	6.35
2013	354	4.92	4.40	5.43

Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

### 3. Demographics of NSW residents newly diagnosed with HIV

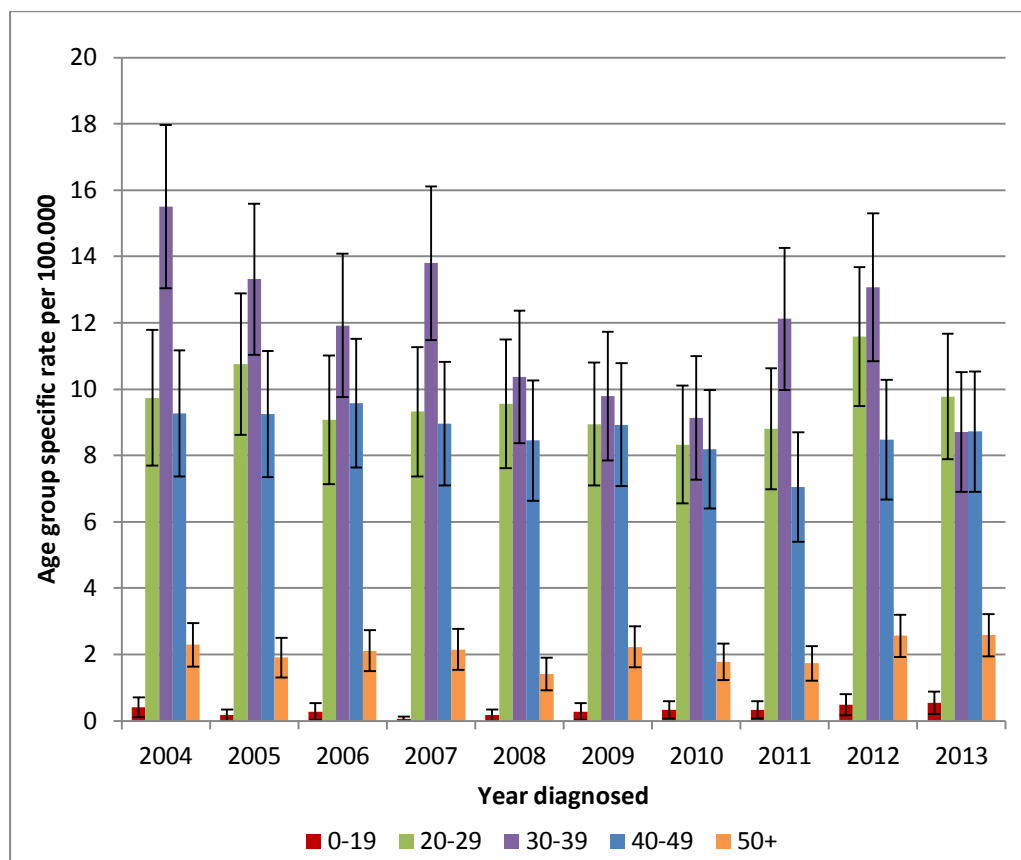
Of 354 NSW residents newly diagnosed with HIV in 2013, 10 (3%) were aged 0 to 19 years, 101 (29%) were 20 to 29 years, 90 (25%) were 30 to 39 years, 89 (25%) were 40 to 49 years and 64 (18%) were 50 years and over. Compared with the 2008 to 2012 five year period, in 2013 the number of new diagnoses declined in 30 to 39 year olds (33% for 2008 to 2012) and rose in those 50 years and over (13% for 2008 to 2012) (Figure 2). In 2013 the age group specific rates per 100,000 of new diagnoses were similar for the age groups 20 to 29, 30 to 39 and 40 to 49 years (Figure 3).

**Figure 2. Number of NSW residents newly diagnosed with HIV infection 1 January 2004 to 31 December 2013 by age at diagnosis**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

**Figure 3. Age group specific rates per 100,000 population for new diagnoses of HIV infection January 2004 to 31 December 2013**

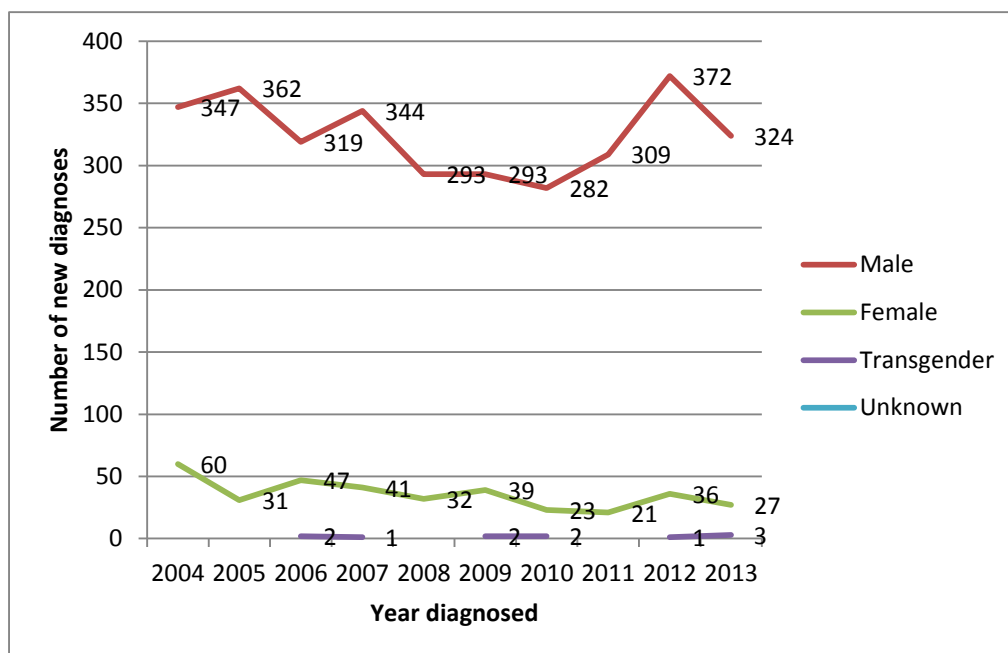


Rates were age-standardised using the Australian population as at 30 June 2001.

In 2013, 92% of NSW residents newly diagnosed with HIV were male, similar to 91% for the 2008 to 2012 five year period (91%) (Figure 4). The rise in male cases in 2012 was predominantly among men who have sex with men resident in inner metro Sydney with a high proportion in early stage infection (see Figure 7, 13 and 26). The number and proportion of infections in females per year remains steady; 8% of people newly diagnosed in 2013 were female, similar to 9% for 2008 to 2012.

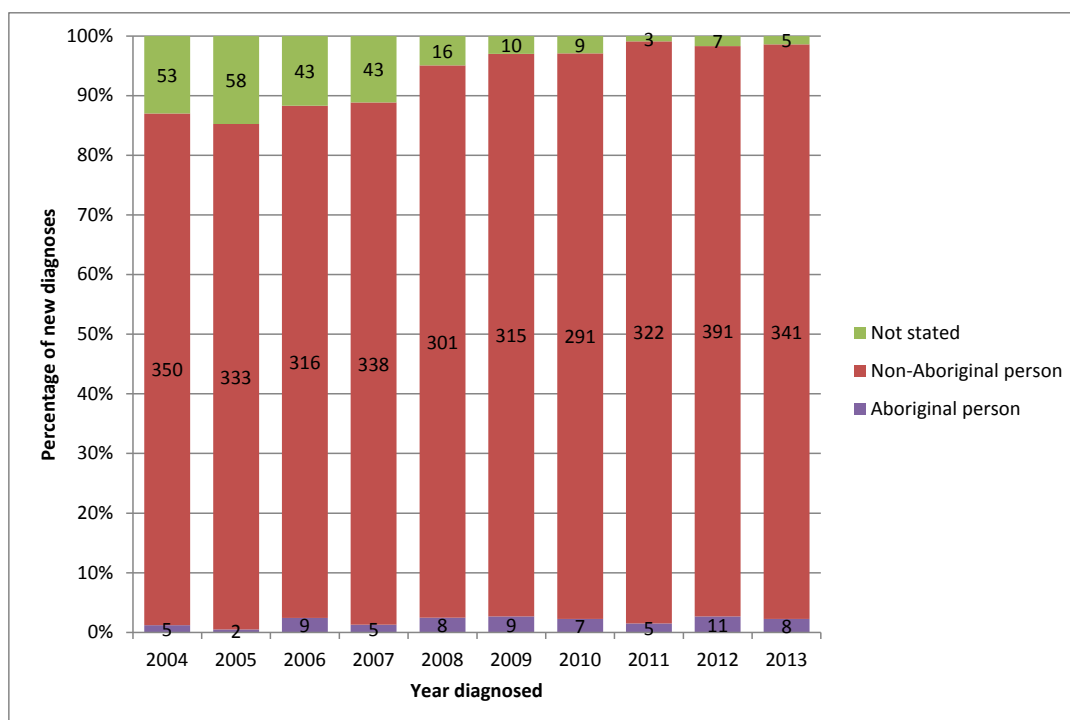
In 2013, 2.3% of NSW residents newly diagnosed were reported as being Aboriginal people, the same proportion as for the five year period 2008 to 2012 (Figure 5). In the 2011 Census it was estimated that Aboriginal people comprised 2.5% of the NSW population. However there is a differential in the burden of new HIV diagnoses when gender and Aboriginal people status are examined together. Among 324 males newly diagnosed with HIV in 2013, 5 (1.5%) were Aboriginal people, compared with 2.1% from 2008 to 2012. Among 27 females newly diagnosed in 2013, 3 (11.1%) were Aboriginal people, compared with 4% from 2008 to 2012. Aboriginal women comprise an excessive proportion of new HIV diagnoses among women relative to percentage of women in NSW estimated to be Aboriginal people (2.5%, 2011 Census).

**Figure 4. Number of NSW residents newly diagnosed with HIV infection 1 January 2004 to 31 December 2013 by gender**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

**Figure 5. Percentage of NSW residents newly diagnosed with HIV infection 1 January 2004 to 31 December 2013 by reported Aboriginal person status**

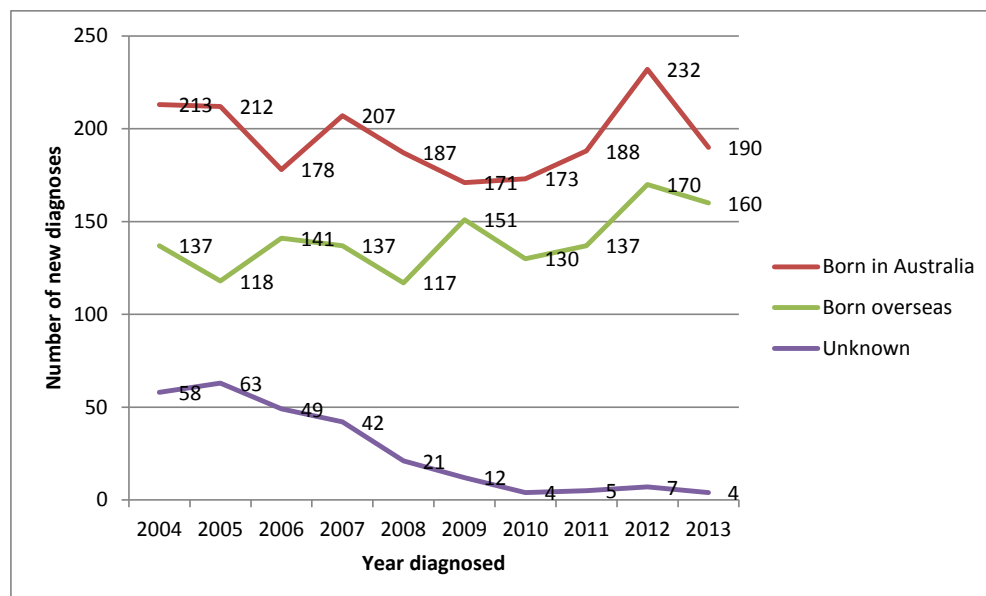


Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014



In 2013, 54% of NSW residents newly diagnosed with HIV infection were born in Australia, similar to the 2008 to 2012 five year period (56%) (Figure 6 and Table 1).

**Figure 6. Place of birth of NSW residents newly diagnosed 1 January 2004 to 31 December 2013**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

**Table 1. Region of birth\* of NSW residents newly diagnosed with HIV infection in 2013 and comparison with the 2008 to 2012 five year mean**

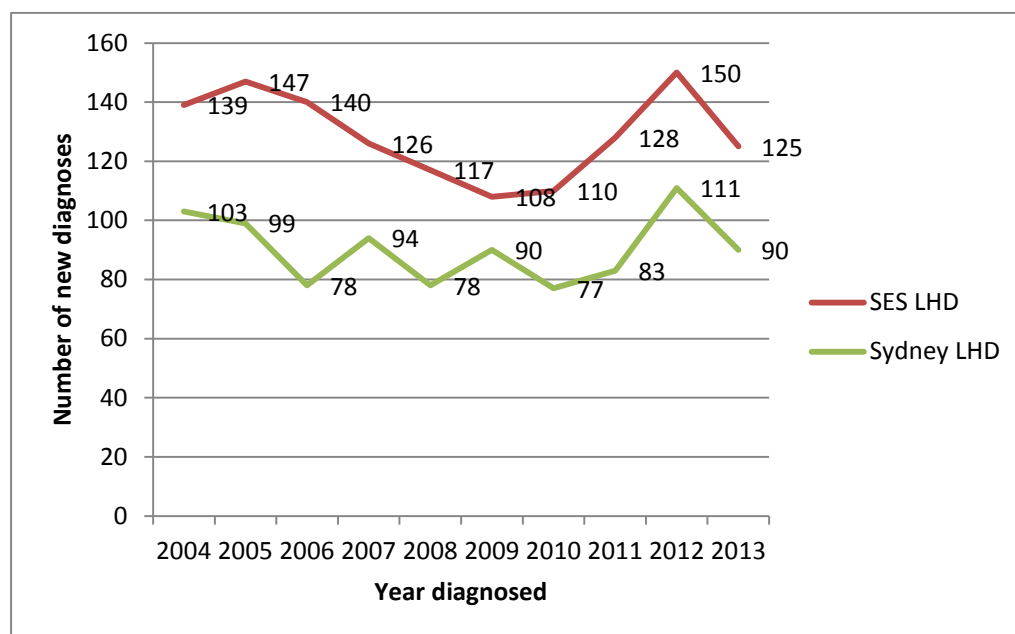
Region of birth	2013	%	2008-2012 mean	%	% change
Australia	190	54%	190.2	56%	0%
South-East Asia	44	12%	33.4	10%	32%
Oceania	24	7%	15	4%	60%
North-East Asia	22	6%	14.4	4%	53%
Central and South America	20	6%	10.6	3%	89%
North-West Europe	16	5%	23.8	7%	-33%
Sub-Saharan Africa	9	3%	15.2	4%	-41%
North Africa & Middle East	9	3%	6.2	2%	45%
Southern & Eastern Europe	6	2%	10.2	3%	-41%
Northern America	5	1%	5.6	2%	-11%
Southern and Central Asia	5	1%	5.8	2%	-14%
Caribbean	0	0%	0.8	0%	-100%
Unknown	4	1%	9.8	3%	-59%
<b>Total</b>	<b>354</b>	<b>100%</b>	<b>341</b>	<b>100%</b>	<b>4%</b>

Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

\* Regions of birth. See Australian Bureau of Statistics, Standard Australian Classification of Countries (SACC). \*\* <http://www.abs.gov.au/ausstats/abs@.nsf/mf/1269.0>. Region of birth (ABS SACC); Australia, Oceania and Antarctica, North-West Europe, Southern and Eastern Europe, North Africa and The Middle East, South-East Asia, North-East Asia, Southern and Central Asia, Americas, Sub-Saharan Africa. The top ten countries of birth for NSW residents newly diagnosed in 2013, after Australia (N=190), were New Zealand (16), Philippines (14), Brazil (12), Thailand (10), China (10), United Kingdom (9), Indonesia (9), Fiji (7), Malaysia (6) and United States of America (5) and Vietnam (5) ranked tenth.

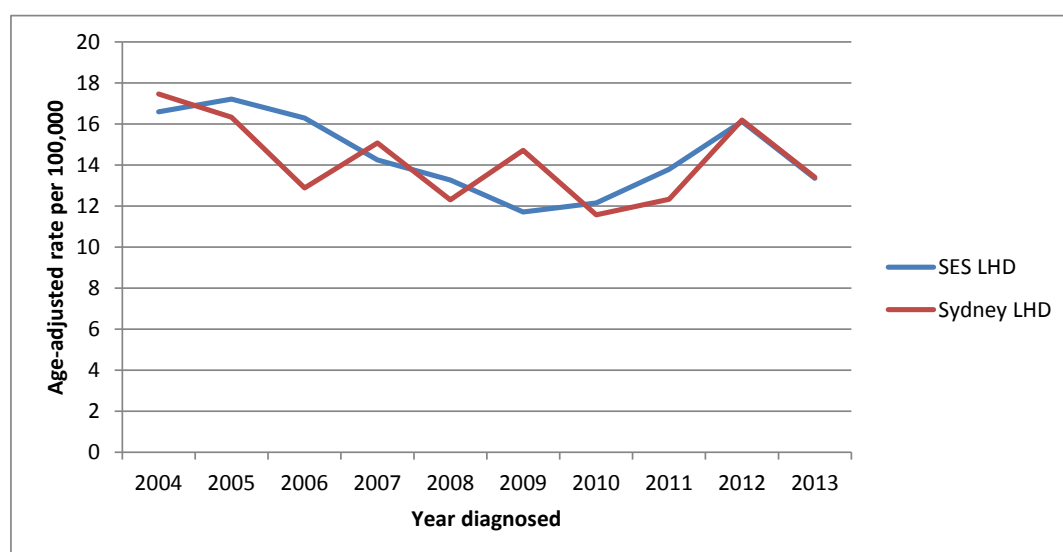
In 2013, 125 (35%) people newly diagnosed were resident in South Eastern Sydney (SES) Local Health District (LHD), similar to the 2008 to 2012 five year mean (123 people). A further 90 (25%) of the 2013 new diagnoses resided in Sydney LHD, also similar to the 2008 to 2012 five year mean (88 people) (Figure 7). The age-standardised rates in SES and Sydney LHDs were very similar and much higher than the rates for all other LHDs (Figure 8 and 10). The increased number of notifications in 2012 mainly occurred among MSM resident in SES and Sydney LHD, with a higher proportion than normal in early stage infection (see Figure 7, 13 and 26).

**Figure 7. Number of people newly diagnosed with HIV infection 1 January 2004 to 31 December 2013 resident in South Eastern Sydney (SES) and Sydney local health districts (LHD)**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

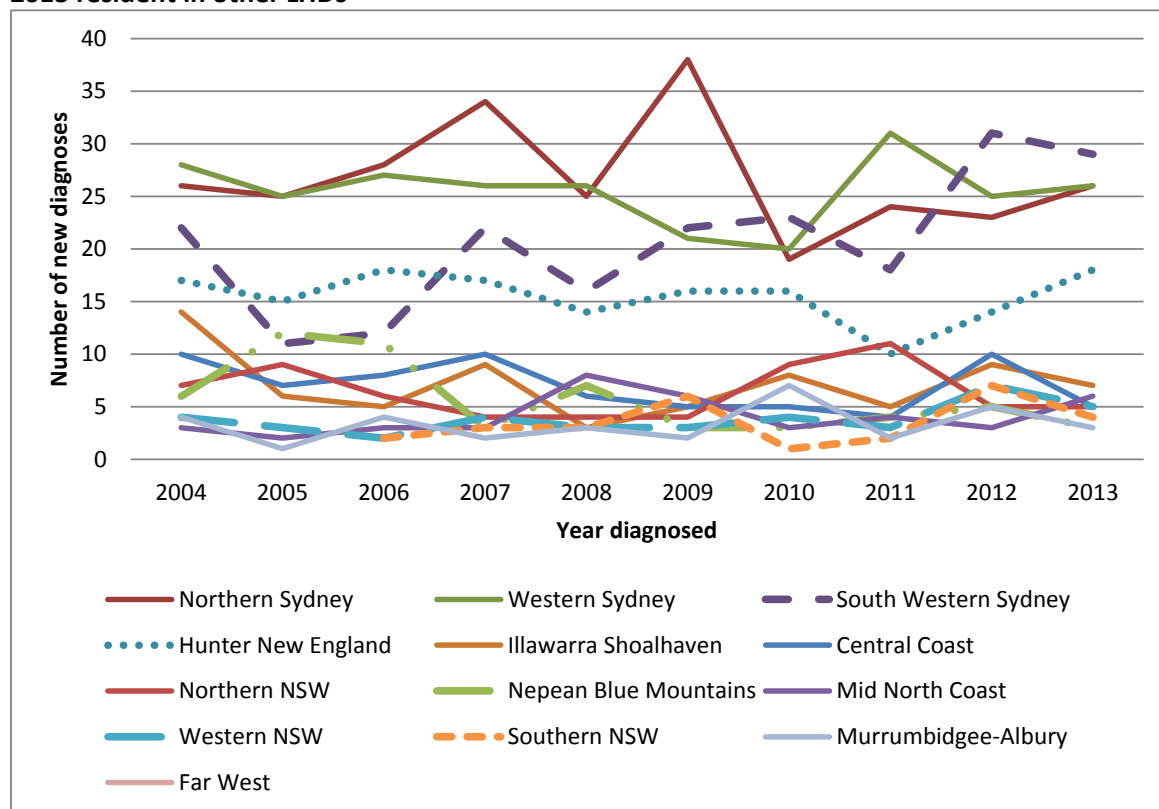
**Figure 8. Age-standardised rates per 100,000 population of new HIV diagnoses 1 January 2004 to 31 December 2013 among residents of South Eastern Sydney (SES) and Sydney LHD**



Rates were age-standardised using the Australian population as at 30 June 2001.

In the other LHDs, the main observed increases in the number of new diagnoses at LHD level in 2013 compared with the 2008 to 2012 five year mean, were in South Western Sydney (SWS) LHD (32% increase) and Hunter New England (HNE) LHD (29% increase) (Figure 9). From 2004 to 2013 the age standardised rate of new diagnoses within each LHD has remained stable and not varied up or down significantly (data not shown).

**Figure 9. Number of people newly diagnosed with HIV infection 1 January 2004 to 31 December 2013 resident in other LHDs\***

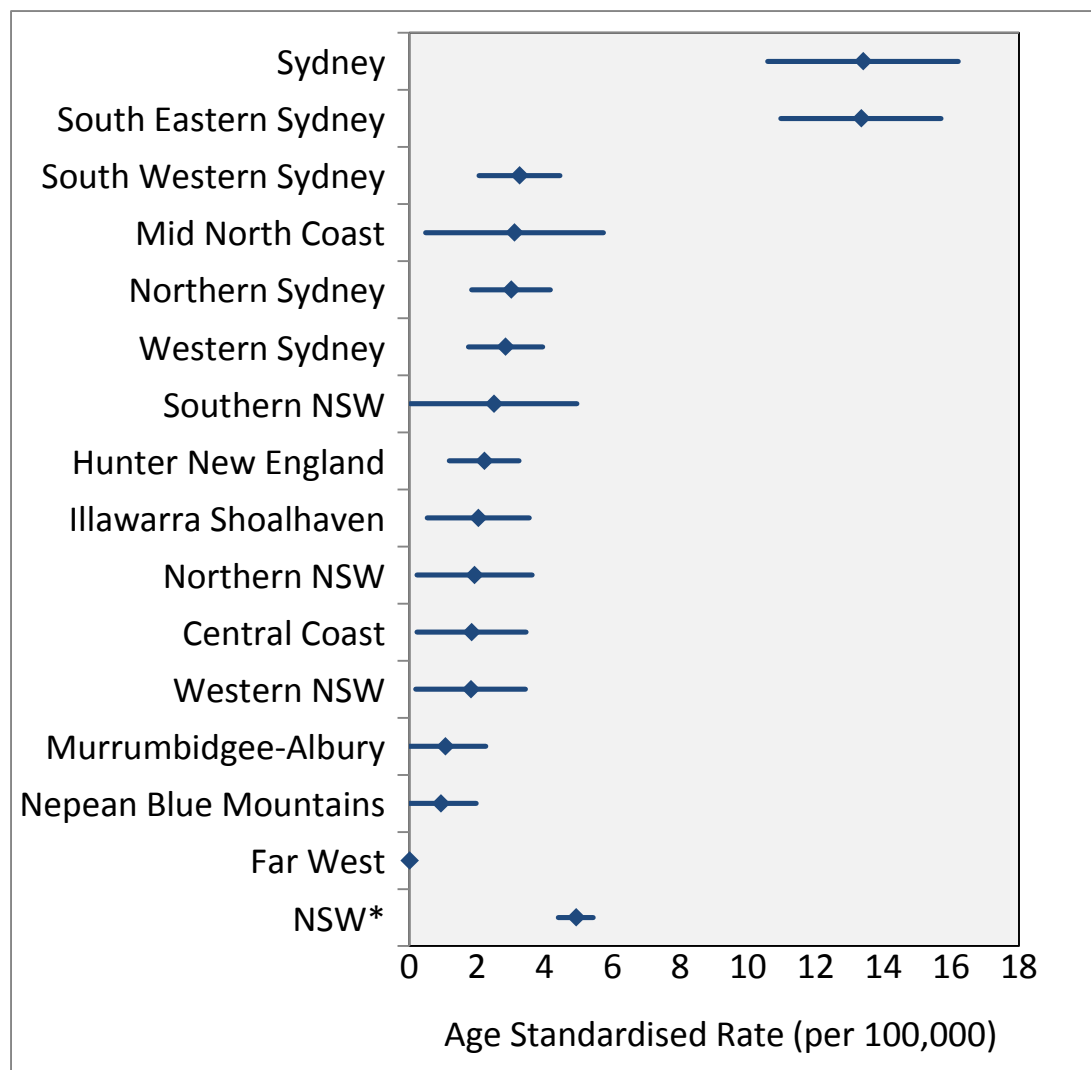


Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

\*excludes 130 cases of unknown LHD of residence

Age standardised rates per 100,000 of new diagnoses per LHD in 2013 were similar in Sydney and SES LHDs and higher compared with all other LHDs (Figure 10). Age standardised rates per 100,000 of new diagnoses in LHDs other than Sydney and SES LHDs were mostly similar (Figure 10).

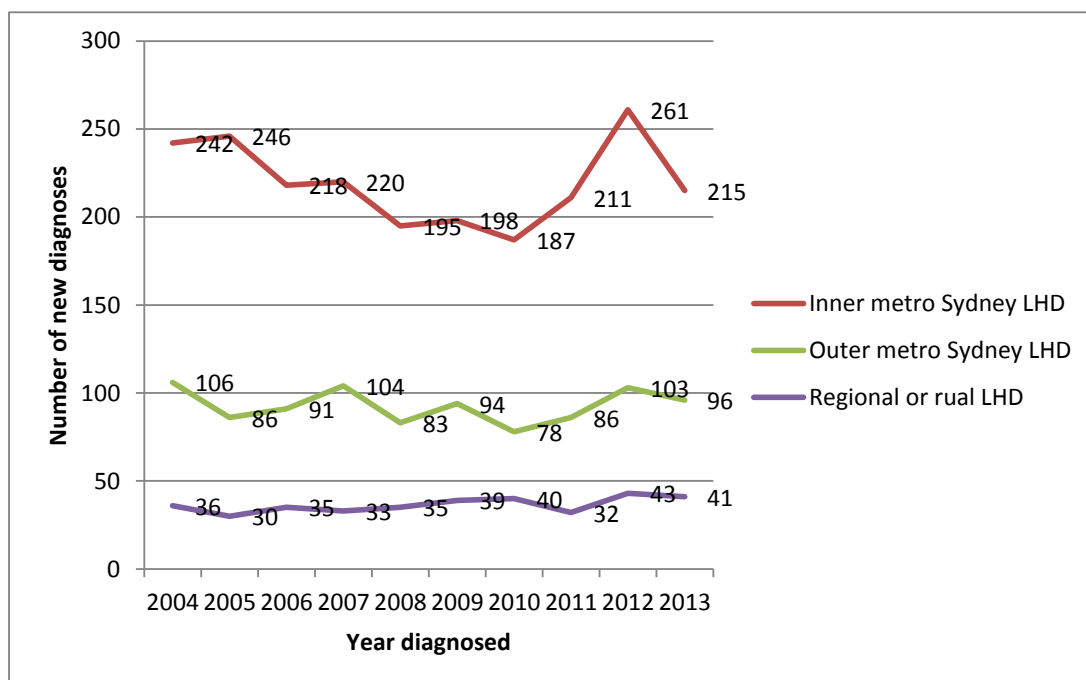
**Figure 10. Age-standardised rates per 100,000 of new HIV diagnoses in 2013 among residents in each of the local health districts (LHD)**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014  
 Rates were age-standardised using the Australian population as at 30 June 2001.

At a cruder geographical level than the LHD, in 2013, 215 of 354 (61%) people newly diagnosed resided in inner metro Sydney (SES and Sydney LHDs), 96 (27%) in outer metro Sydney (Northern Sydney, South Western Sydney, Western Sydney, Central Coast, Illawarra Shoalhaven and Nepean Blue Mountains LHDs) and 41 (12%) in regional or rural NSW (Far West, Hunter New England, Mid North Coast, Murrumbidgee, Northern NSW, Southern NSW and Western NSW LHDs) (Figure 11). The age-standardised rate of new diagnoses per 100,000 population for outer metro Sydney are similar to that for regional or rural NSW (Figure 12).

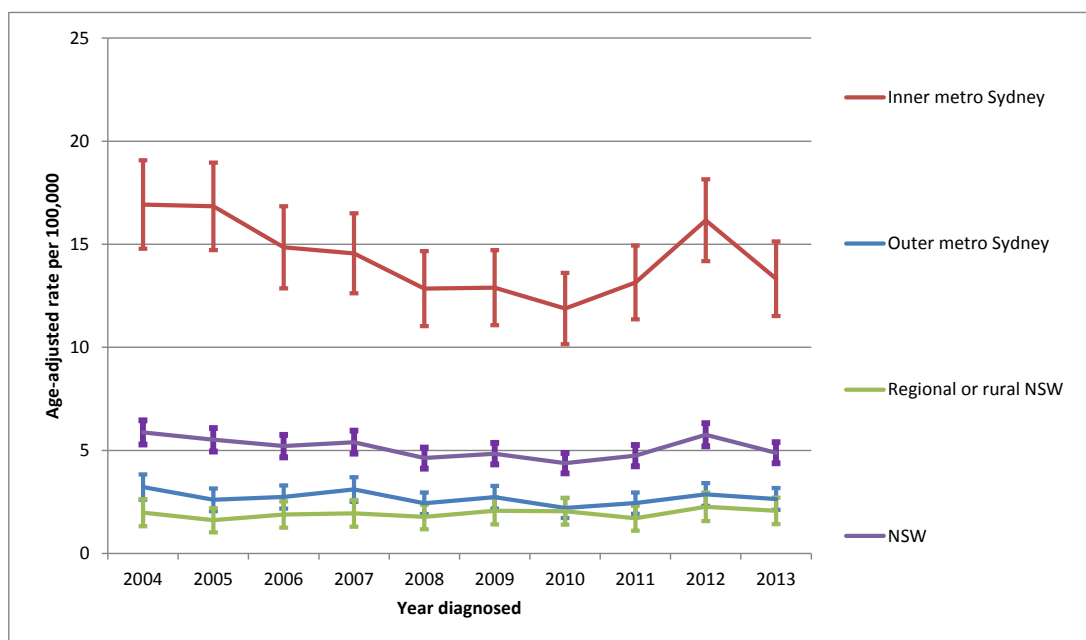
**Figure 11. Number of people newly diagnosed with HIV infection 1 January 2004 to 31 December 2013\* by area of residence\*\***



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

\*excludes 130 cases of unknown LHD of residence. \*\*Inner metro LHDs: South Eastern Sydney, Sydney; Outer metro LHDs: Northern Sydney, South Western Sydney, Western Sydney, Central Coast, Illawarra Shoalhaven, Nepean Blue Mountains; Rural & Regional LHDs: Far West, Hunter New England, Mid North Coast, Murrumbidgee, Northern NSW, Southern NSW, Western NSW

**Figure 12. Age-standardised rate per 100,000 population of new HIV diagnoses 1 January 2004 to 31 December 2013\* by area of residence\*\***



Rates were age-standardised using the Australian population as at 30 June 2001.

**Table 2. Tabulated demographic characteristics of NSW residents newly diagnosed with HIV infection by year of diagnosis, to 31 December 2013**

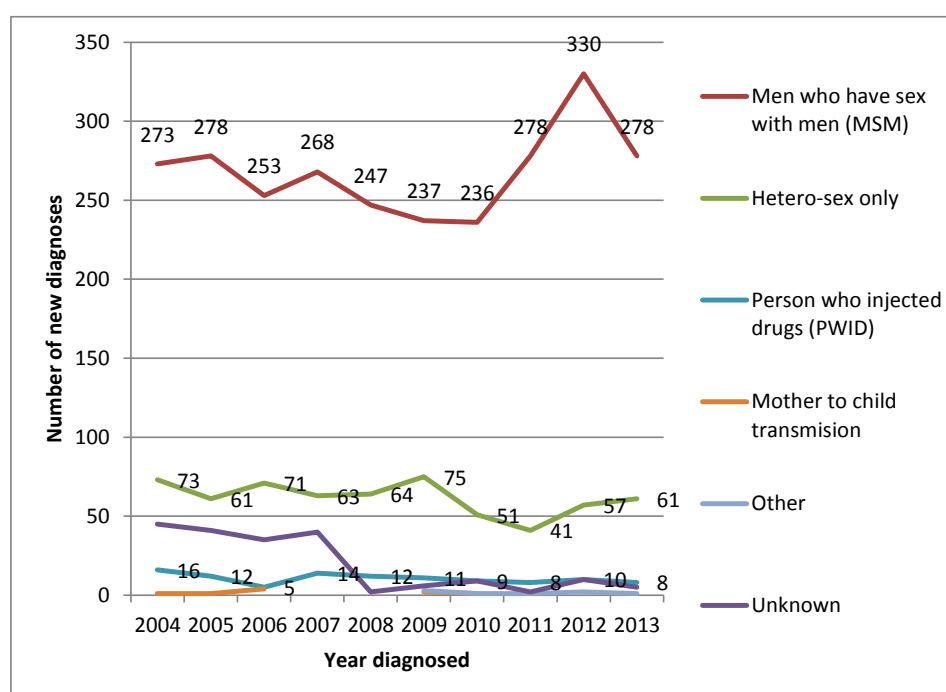
Characteristics	2008		2009		2010		2011		2012		2013		1984-2013	
	n=325	%	n=334	%	n=307	%	n=330	%	n=409	%	n=354	%	n=16922	%
<b>Gender</b>														
Male	293	90.2%	293	87.7%	282	91.9%	309	93.6%	372	91.0%	324	91.5%	15559	91.9%
Female	32	9.8%	39	11.7%	23	7.5%	21	6.4%	36	8.8%	27	7.6%	1078	6.4%
Transgender	0	0.0%	2	0.6%	2	0.7%	0	0.0%	1	0.2%	3	0.8%	247	1.5%
Unknown	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	38	0.2%
<b>Aboriginal person status</b>														
Aboriginal person	8	2.5%	9	2.7%	7	2.3%	5	1.5%	11	2.7%	8	2.3%	154	0.9%
Non-Aboriginal person	301	92.6%	315	94.3%	291	94.8%	322	97.6%	391	95.6%	341	96.3%	9815	58.0%
Not stated	16	4.9%	10	3.0%	9	2.9%	3	0.9%	7	1.7%	5	1.4%	6953	41.1%
<b>Age group (years)</b>														
0 to 4	0	0.0%	1	0.3%	1	0.3%	0	0.0%	0	0.0%	0	0.0%	40	0.2%
5 to 9	0	0.0%	1	0.3%	0	0.0%	0	0.0%	0	0.0%	1	0.3%	23	0.1%
10 to 14	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	35	0.2%
15 to 19	3	0.9%	3	0.9%	5	1.6%	6	1.8%	9	2.2%	9	2.5%	301	1.8%
20 to 24	39	12.0%	34	10.2%	29	9.4%	34	10.3%	44	10.8%	37	10.5%	2053	12.1%
25 to 29	58	17.8%	57	17.1%	56	18.2%	56	17.0%	76	18.6%	64	18.1%	3357	19.8%
30 to 34	44	13.5%	43	12.9%	49	16.0%	64	19.4%	70	17.1%	48	13.6%	3385	20.0%
35 to 39	63	19.4%	58	17.4%	44	14.3%	59	17.9%	63	15.4%	42	11.9%	2833	16.7%
40 to 44	52	16.0%	57	17.1%	52	16.9%	44	13.3%	47	11.5%	44	12.4%	2072	12.2%
45 to 49	32	9.8%	30	9.0%	30	9.8%	26	7.9%	38	9.3%	45	12.7%	1208	7.1%
50 to 54	14	4.3%	28	8.4%	7	2.3%	25	7.6%	28	6.8%	25	7.1%	723	4.3%
55 to 59	10	3.1%	12	3.6%	22	7.2%	10	3.0%	14	3.4%	22	6.2%	409	2.4%
60 to 64	6	1.8%	1	0.3%	5	1.6%	2	0.6%	13	3.2%	6	1.7%	209	1.2%
65 to 69	0	0.0%	4	1.2%	6	2.0%	2	0.6%	4	1.0%	9	2.5%	117	0.7%
70 to 74	2	0.6%	5	1.5%	1	0.3%	1	0.3%	0	0.0%	1	0.3%	41	0.2%
75 to 79	2	0.6%	0	0.0%	0	0.0%	1	0.3%	3	0.7%	1	0.3%	20	0.1%
80 to 84	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	6	0.0%
85 to 89	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	0.0%
90 and over	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	86	0.5%
<b>LHD of residence</b>														
SES	117	36.0%	108	32.2%	110	35.8%	128	38.8%	150	36.7%	125	35.3%	5279	31.2%
Sydney	78	24.0%	90	26.9%	77	25.1%	83	25.2%	111	27.1%	90	25.4%	2750	16.3%
Northern Sydney	25	7.7%	38	11.4%	19	6.2%	24	7.3%	23	5.6%	26	7.3%	937	5.5%
Western Sydney	26	8.0%	22	6.6%	20	6.5%	31	9.4%	25	6.1%	26	7.3%	667	3.9%
SWS	16	4.9%	21	6.3%	23	7.5%	18	5.5%	31	7.6%	29	8.2%	592	3.5%
Hunter New England	14	4.3%	16	4.8%	16	5.2%	10	3.0%	14	3.4%	18	5.1%	436	2.6%
Nepean Blue Mountains	7	2.2%	3	0.9%	3	1.0%	4	1.2%	5	1.2%	3	0.8%	247	1.5%
Illawarra Shoalhaven	3	0.9%	5	1.5%	8	2.6%	5	1.5%	9	2.2%	7	2.0%	211	1.2%
Central Coast	6	1.8%	5	1.5%	5	1.6%	4	1.2%	10	2.4%	5	1.4%	183	1.1%
Northern NSW	4	1.2%	4	1.2%	9	2.9%	11	3.3%	5	1.2%	5	1.4%	180	1.1%
Mid North Coast	8	2.5%	6	1.8%	3	1.0%	4	1.2%	3	0.7%	6	1.7%	132	0.8%
Western NSW	3	0.9%	3	0.9%	4	1.3%	3	0.9%	7	1.7%	5	1.4%	116	0.7%
Murrumbidgee	3	0.9%	1	0.3%	6	2.0%	2	0.6%	3	0.7%	2	0.6%	57	0.3%
Southern NSW	3	0.9%	6	1.8%	1	0.3%	2	0.6%	7	1.7%	4	1.1%	50	0.3%
Albury	0	0.0%	1	0.3%	1	0.3%	0	0.0%	2	0.5%	1	0.3%	25	0.1%
Far West	0	0.0%	2	0.6%	0	0.0%	0	0.0%	2	0.5%	0	0.0%	8	0.0%
Justice Health	1	0.3%	1	0.3%	1	0.3%	0	0.0%	1	0.2%	1	0.3%	5	0.0%
Unknown	11	3.4%	2	0.6%	1	0.3%	1	0.3%	1	0.2%	1	0.3%	5047	29.8%

Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

#### 4. HIV risk exposure characteristics of NSW residents newly diagnosed with HIV to 31 December 2013

Of 354 NSW residents newly diagnosed with HIV in 2013, 278 (79%) were reported to be men who have sex with men (MSM), 61 (17%) reported heterosexual contact (HETS or hetero-sex) as their HIV risk exposure, 8 (2%) reported being a person who injected drugs (PWID), 5 (1%) had an unknown or unreported HIV risk exposure, one case was acquired through mother to child transmission (MTC) that had occurred overseas and one case was acquired through an 'other' type of exposure (Figure 13). This was a similar pattern compared to the 2008 to 2012 five year period (MSM 78%; Hetero-sex 17%; PWID 3%; and MTC, 'other' and 'unknown' each 0%) (Table 3).

**Figure 13. Number of NSW residents newly diagnosed with HIV infection 1 January 2004 to 31 December 2013 by self-reported HIV risk exposure**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August

**Table 3. HIV risk exposure reported by NSW residents newly diagnosed with HIV to 31 December 2013**

Characteristics	2008		2009		2010		2011		2012		2013		1984-2013	
HIV risk group	n=325	%	n=334	%	n=307	%	n=330	%	n=409	%	n=354	%	n=16922	%
MSM	236	72.6%	220	65.9%	228	74.3%	268	81.2%	318	77.8%	264	74.6%	10570	62.5%
MSM + inject drugs	11	3.4%	17	5.1%	8	2.6%	10	3.0%	12	2.9%	14	4.0%	471	2.8%
Hetero-sex	64	19.7%	75	22.5%	51	16.6%	41	12.4%	57	13.9%	61	17.2%	1527	9.0%
PWID	12	3.7%	11	3.3%	9	2.9%	8	2.4%	10	2.4%	8	2.3%	549	3.2%
Haemophilia, coagulation disorders, blood tissue recipient	0	0.0%	1	0.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	276	1.6%
MTC	0	0.0%	2	0.6%	1	0.3%	0	0.0%	0	0.0%	1	0.3%	45	0.3%
Other	0	0.0%	2	0.6%	1	0.3%	1	0.3%	2	0.5%	1	0.3%	41	0.2%
Unknown	2	0.6%	6	1.8%	9	2.9%	2	0.6%	10	2.4%	5	1.4%	3443	20.3%

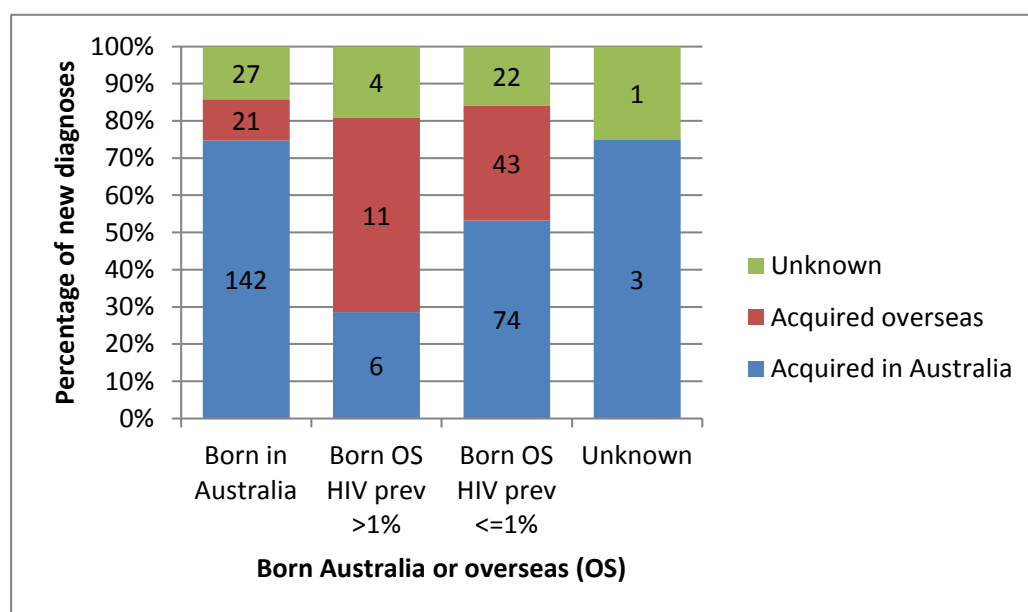
Independent of where born, of all 354 people newly diagnosed in 2013, 225 (64%) likely acquired HIV in Australia, 75 (21%) likely acquired HIV overseas and for 54 (15%) place of acquisition was unknown.

Of 190 people newly diagnosed who were born in Australia, 142 (75%) likely acquired HIV in Australia and 21 (11%) likely acquired HIV overseas (Figure 14).

Of 21 people newly diagnosed who were born in a country with a general HIV adult prevalence estimate of 1% or more ('high prevalence'), 6 (29%) likely acquired HIV in Australia and 11 (52%) likely acquired HIV overseas.

Of 139 people newly diagnosed who were born in a country with a general HIV adult prevalence estimate of less than 1% ('low prevalence'), 74 (53%) likely acquired HIV in Australia and 43 (31%) likely acquired HIV overseas.

**Figure 14. Percentage of NSW residents newly diagnosed with HIV infection in 2013 (n=354) by where infection was likely acquired in those born in Australia or overseas**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014



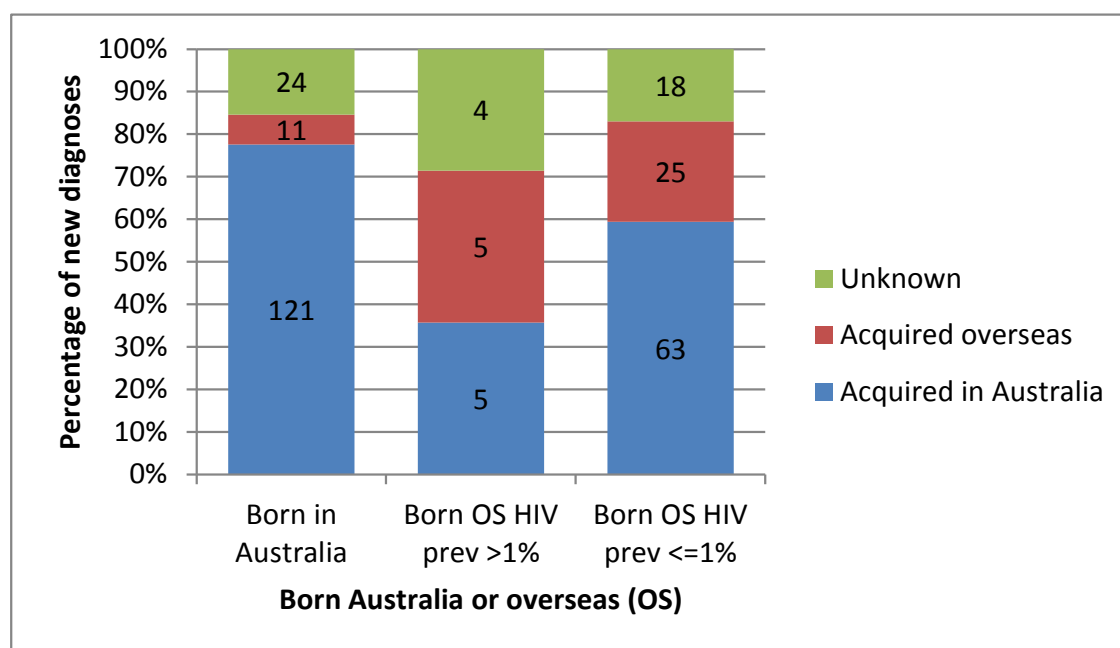
Independent of where born, of 278 MSM newly diagnosed in 2013, 191 (69%) likely acquired HIV in Australia and 41 (15%) likely acquired HIV overseas.

Of 156 MSM newly diagnosed who were born in Australia, 121 (78%) likely acquired HIV in Australia and 11 (7%) likely acquired HIV overseas (Figure 15).

Of 14 MSM newly diagnosed who were born in a country with a general HIV adult prevalence estimate of 1% or more ('high prevalence'), 5 (36%) likely acquired HIV in Australia and 5 (36%) likely acquired HIV overseas.

Of 106 MSM newly diagnosed who were born in a country with a general HIV adult prevalence estimate of less than 1% ('low prevalence'), 63 (59%) likely acquired HIV in Australia and 25 (24%) likely acquired HIV overseas.

**Figure 15. Percentage of all NSW residents newly diagnosed with HIV infection in 2013 and who reported being MSM (n=278), by where infection was likely acquired in those born in Australia or overseas**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

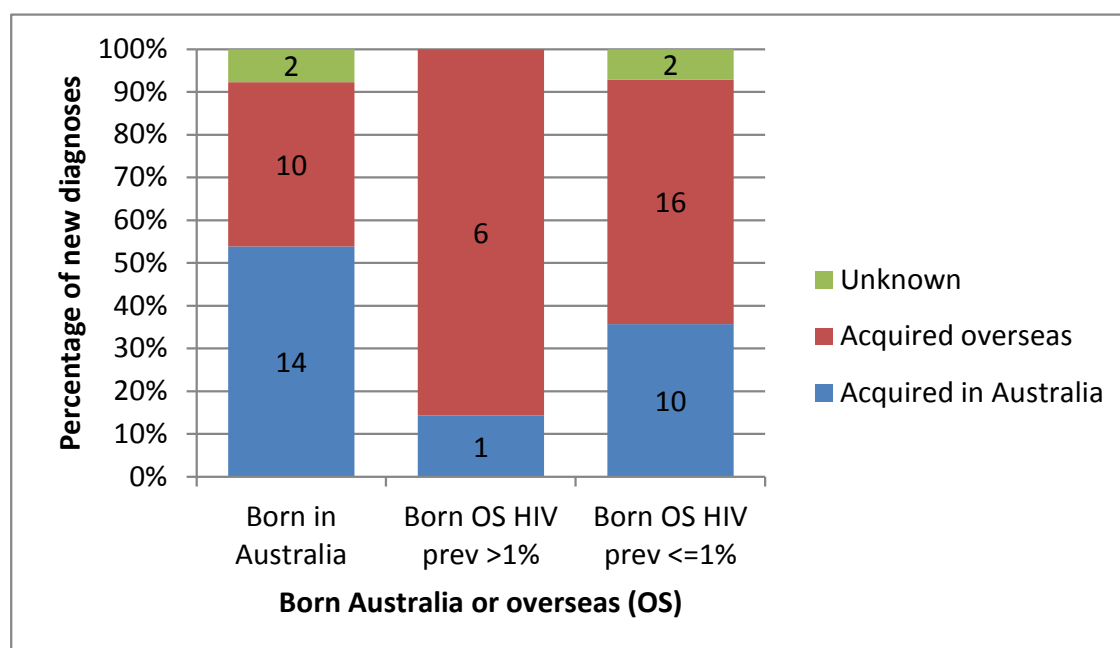
Independent of where born, of 61 heterosexually acquired HIV new diagnoses, 25 (41%) were likely acquired HIV in Australia and 32 (52%) likely acquired HIV overseas.

Of 26 heterosexually acquired HIV new diagnoses who were born in Australia, 14 (54%) likely acquired HIV in Australia and 10 (38%) likely acquired HIV overseas (Figure 16).

Of 7 heterosexually acquired HIV new diagnoses who were born in a country with a general HIV adult prevalence estimate of 1% or more ('high prevalence'), 1 (14%) likely acquired HIV in Australia and 6 (86%) likely acquired HIV overseas.

Of 28 heterosexually acquired HIV new diagnoses who were born in a country with a general HIV adult prevalence estimate of less than 1% ('low prevalence'), 10 (36%) likely acquired HIV in Australia and 16 (57%) likely acquired HIV overseas.

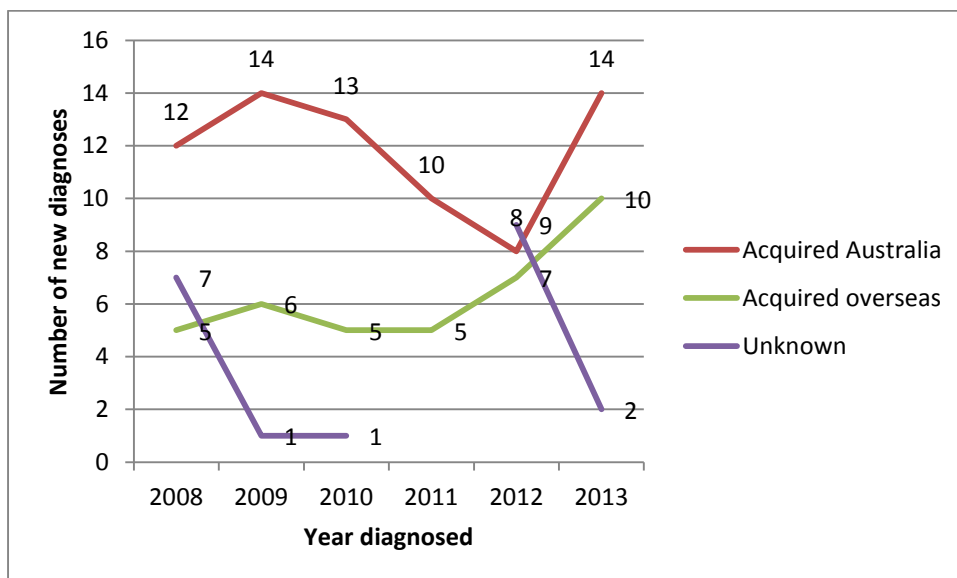
**Figure 16. Percentage NSW residents newly diagnosed with HIV infection in 2013 with reported heterosexual exposure to HIV (n=61), by where infection was likely acquired in those born in Australia or overseas**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

While numbers remain low, in 2013, there is a small increase in the number of Australian born, heterosexually acquired new diagnoses who acquired their infection overseas (Figure 17).

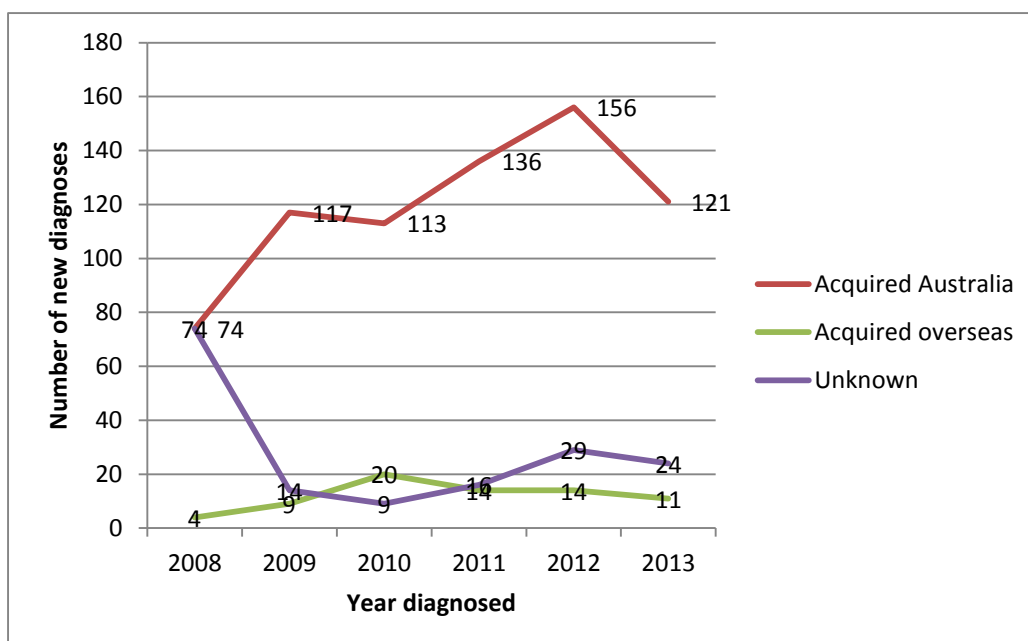
**Figure 17. Number of NSW newly diagnosed with HIV infection 1 January 2008 to 31 December 2013 born in Australia and who reported heterosexual exposure to HIV, by place likely infected**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

Most new diagnoses in Australian born MSM in 2013 were acquired in Australia (Figure 18).

**Figure 18. Number of NSW newly diagnosed with HIV infection 1 January 2008 to 31 December 2013 born in Australia and who reported being MSM, by place likely infected**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

**Table 4. Demographics of the main affected risk groups and all newly diagnosed with HIV infection in 2013 and a comparison with the 2008 to 2012 five year mean**

	2013		2008-12 mean		2013		2008-12 mean		2013		2008-12 mean		2013		2008-12 mean	
	MSM		MSM		HETS		HETS		PWID		PWID		All		All	
Number	n=278	%	n=266	%	n=61	%	n=58	%	n=8	%	n=10	%	n=354		n=341	
<b>Gender</b>																
<i>Male</i>	275	99%	264.6	100%	37	61%	31.2	54%	7	88%	7.4	74%	324		309.8	
<i>Female</i>	0	0%	-	-	24	39%	26.4	46%	1	13%	2.6	26%	27		30.2	
<i>Transgender</i>	3	1%	1	0%		0%	0	0%	0	0%	0	0%	3		1	
<b>Age in years</b>																
<i>0 to 19</i>	6	2%	3.8	1%	3	5%	1.2	2%	0	0%	0	0%	10		5.8	
<i>20 to 29</i>	91	33%	76.2	29%	8	13%	15.8	27%	1	13%	2.8	28%	101		96.6	
<i>30 to 39</i>	72	26%	89	34%	14	23%	17.2	30%	2	25%	3.4	34%	90		111.2	
<i>40 to 49</i>	66	24%	65.4	25%	17	28%	12.2	21%	5	63%	3	30%	89		81.8	
<i>50 and over</i>	43	15%	31.2	12%	19	31%	11.2	19%	0	0%	0.8	8%	64		45.6	
<b>Aboriginal person</b>																
<i>Yes Aboriginal person</i>	2	1%	5.8	2%	5	8%	1	2%	1	13%	1.2	12%	8		8	
<i>No</i>	272	98%	252.2	95%	56	92%	55.6	97%	7	88%	8.6	86%	341		324	
<i>Not stated</i>	4	1%	7.6	3%		0%	1	2%		0%	0.2	2%	5		9	
<b>Place of birth</b>																
<i>Australia</i>	156	56%	159.8	60%	26	43%	20.6	36%	6	75%	7.4	74%	190		190.2	
<i>High prev. country*</i>	14	5%	10.8	4%	7	11%	16.8	29%	0	0%	0.2	2%	21		29.2	
<i>Low prev. country</i>	106	38%	86.4	33%	28	46%	19	33%	1	13%	2.4	24%	139		111.8	
<i>Unknown</i>	2	1%	8.6	3%		0%	1.2	2%	1	13%	0	0%	4		9.8	
<b>Area of residence**:</b>																
<i>Inner metro Sydney</i>	185	67%	185.8	70%	22	36%	16	28%	4	50%	5.4	54%	215		210.4	
<i>Outer metro Sydney</i>	67	24%	53.2	20%	25	41%	30.8	53%	2	25%	1.8	18%	96		88.8	
<i>Regional and rural NSW</i>	25	9%	24	9%	13	21%	10.4	18%	0	25%	2.2	22%	41		37.8	
<i>Other</i>	1	0%	2.6	1%	1	2%	0.4	1%	0	0%	0.6	6%	2		4	

Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

\*High prevalence country refers to countries with a general HIV adult prevalence estimate 1% or over; Low prevalence country refers to countries with a general HIV adult prevalence estimate less than 1%

\*\*Inner metro LHDs: South Eastern Sydney, Sydney; Outer metro LHDs: Northern Sydney, South Western Sydney, Western Sydney, Central Coast, Illawarra Shoalhaven, Nepean Blue Mountains; Rural & Regional LHDs: Far West, Hunter New England, Mid North Coast, Murrumbidgee, Northern NSW, Southern NSW, Western NSW

**Table 5. Other characteristics of the main affected risk groups and all newly diagnosed with HIV infection in 2013 and a comparison with the 2008 to 2012 five year mean**

	2013		2008-12 mean		2013		2008-12 mean		2013		2008-12 mean		2013		2008-12 mean	
	MSM		MSM		HETS		HETS		PWID		PWID		All		All	
Number	n=278	%	n=266	%	n=61	%	n=58	%	n=8	%	n=10	%	n=354	n=341		
<b>Likely place acquired HIV</b>																
<i>Australia</i>	191	69%	176.2	66%	25	41%	18.8	33%	8	100%	7.8	78%	225	204		
<i>Overseas</i>	41	15%	34	13%	32	52%	27	47%	0	0%	0.8	8%	75	64.8		
<i>Unknown</i>	46	17%	55.4	21%	4	7%	11.8	20%	0	0%	1.4	14%	54	72.2		
<b>Past testing history</b>																
<i>Tested less than 12 months ago</i>	102	37%	97.4	37%	3	5%	5.4	9%	0	0%	1.2	12%	105	104		
<i>Tested 12 or more months ago</i>	109	39%	98.4	37%	16	26%	15	26%	0	0%	2.6	26%	125	117.2		
<i>Never tested</i>	48	17%	42	16%	37	61%	24	42%	4	50%	3.6	36%	94	72.2		
<i>Unknown</i>	19	7%	27.8	10%	5	8%	13.2	23%	4	50%	2.6	26%	30	47.6		
<b>Diagnosed late*</b>																
<i>Yes</i>	84	30%	75.4	28%	35	57%	28.8	50%	3	38%	4.2	42%	125	112		
<i>No</i>	186	67%	177	67%	23	38%	25.2	44%	4	50%	4.6	46%	215	209		
<i>Unknown</i>	8	3%	13.2	5%	3	5%	3.6	6%	1	13%	1.2	12%	14	20		
<b>CD4 count at diagnosis</b>																
<i>500 and over</i>	108	39%	110.8	42%	10	16%	15.2	26%	2	25%	3	30%	121	130		
<i>350-499</i>	71	26%	60	23%	11	18%	9.4	16%	2	25%	1.6	16%	85	72.2		
<i>200-349</i>	51	18%	45.2	17%	19	31%	12.4	22%	2	25%	1.4	14%	74	60		
<i>Less than 200</i>	37	13%	34	13%	17	28%	16.6	29%	1	13%	2.8	28%	56	55.8		
<i>Unknown</i>	11	4%	15.6	6%	4	7%	4	7%	1	13%	1.2	12%	18	23		
<b>Diagnosing doctor type</b>																
<i>GP non-ART prescriber</i>	96	35%	81.8	31%	37	61%	20.4	35%	3	38%	3.8	38%	139	108.8		
<i>Sexual Health Clinic</i>	92	33%	77.8	29%	9	15%	8.6	15%	1	13%	1.6	16%	102	88.2		
<i>GP s100**</i>	53	19%	63.4	24%		0%	1.8	3%	2	25%	0.6	6%	55	66		
<i>Hospital</i>	31	11%	31.8	12%	10	16%	17.2	30%	1	13%	3.0	30%	45	54		
<i>Immigration</i>	4	1%	7.0	3%	4	7%	7.6	13%		0%	0.2	2%	9	16.4		
<i>Unknown</i>	0	0%	3.8	1%	0	0%	2.0	3%	1	13%	0.8	8%	1	4		

Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

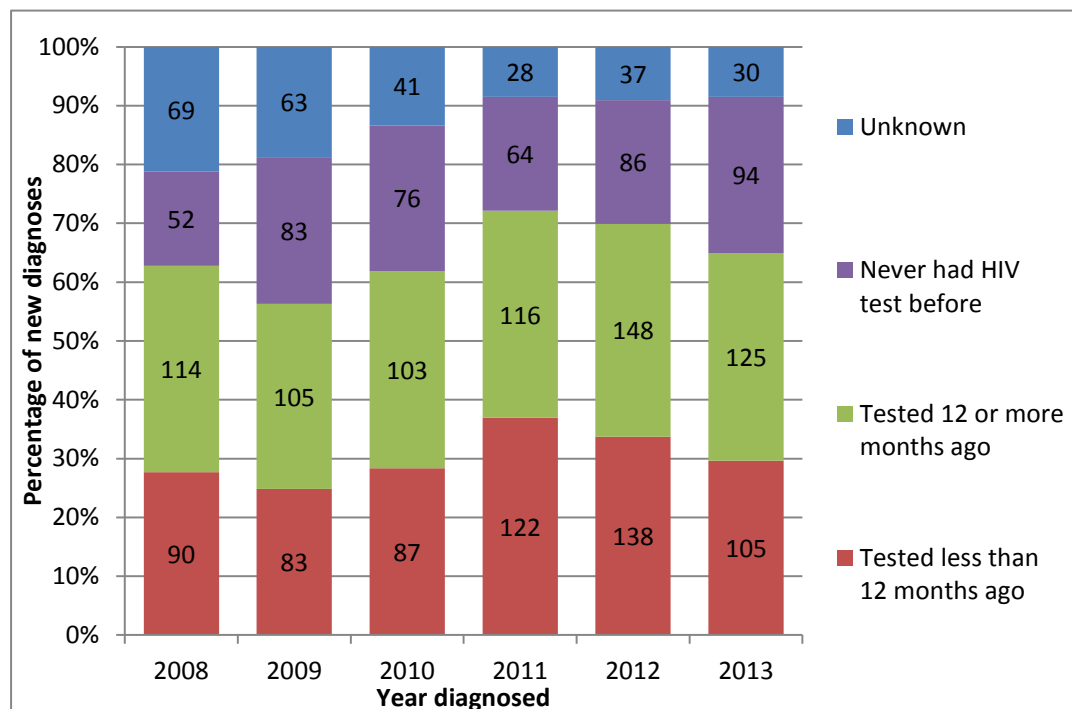
\*Evidence of late diagnosis was defined as a CD4 count less than 350 cells/ $\mu$ L or an AIDS defining illness within three months of diagnosis, in the absence of a laboratory confirmed negative HIV test in the 12 months prior to diagnosis.

\*\*A GP s100 is a private, general medical practitioner who is authorised to prescribe antiretroviral therapy under 'Section 100 – highly specialised drugs program' of the Pharmaceutical Benefits Scheme. Other or unknown include primarily forensics, interstate doctors and blood bank

## 5. HIV testing history and timeliness of diagnosis in NSW residents newly diagnosed

Among all 354 NSW residents newly diagnosed in 2013, 105 (30%) reportedly tested HIV negative in the 12 months prior to diagnosis, the same proportion as for the 2008 to 2012 five year period (Figure 19). In 2013 27% of NSW residents newly diagnosed reportedly had never had an HIV test prior to diagnosis, slightly more than 21% between 2008 and 2012.

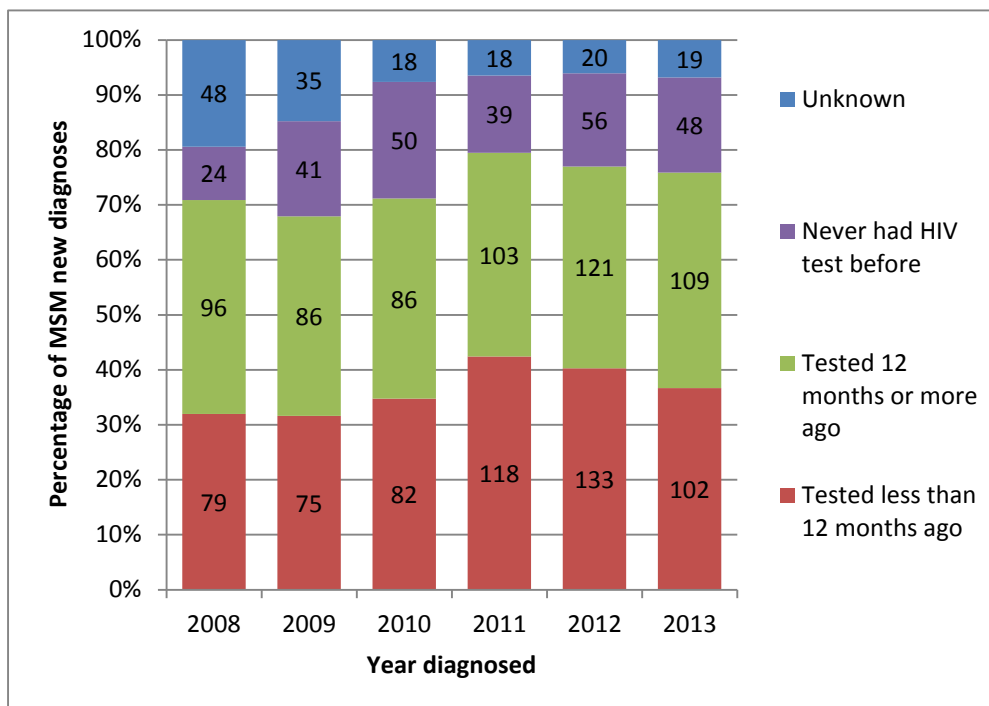
**Figure 19. Percentage of all NSW residents newly diagnosed with HIV infection 1 January 2008 to 31 December 2013 by past HIV testing history**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

Among 278 MSM newly diagnosed in 2013, 102 (37%) reportedly tested HIV negative within 12 months of diagnosis, the same proportion as for MSM between 2008 to 2012 (Figure 20). In 2013 17% of MSM newly diagnosed reportedly had never had an HIV test prior to diagnosis, similar to 16% of MSM from 2008 to 2012.

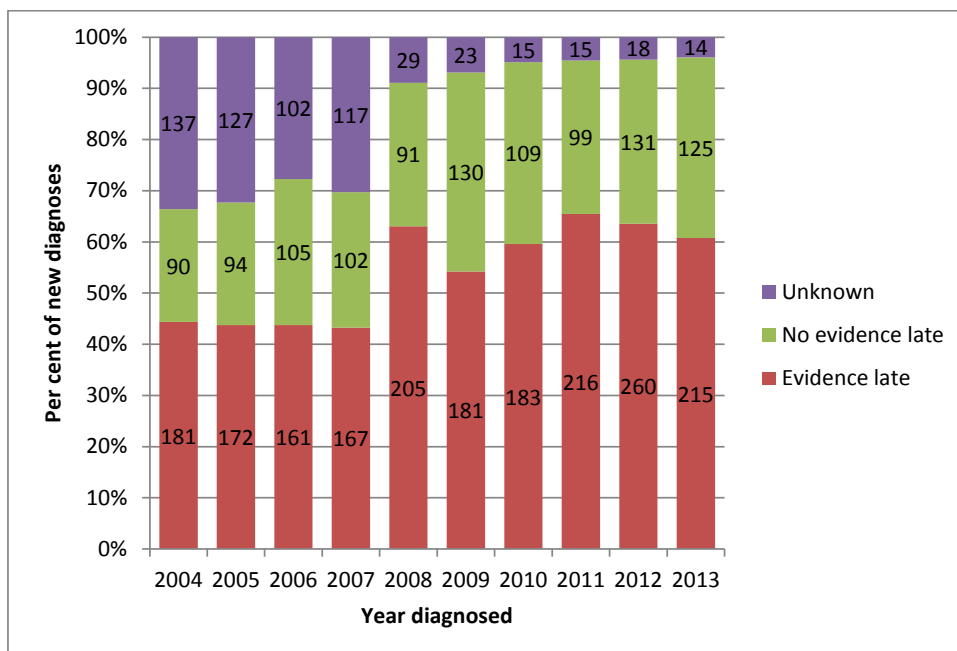
**Figure 20. Percentage of MSM newly diagnosed with HIV infection 1 January 2008 to 31 December 2013 by past HIV testing history**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

Among all 354 NSW residents newly diagnosed in 2013, 215 (61%) had evidence of late diagnosis, the same proportion with evidence of late diagnosis from 2008 to 2012 (Figure 21).

**Figure 21. Percentage and number of NSW residents newly diagnosed with HIV infection 1 January 2004 to 31 December 2013 by evidence of late diagnosis\***



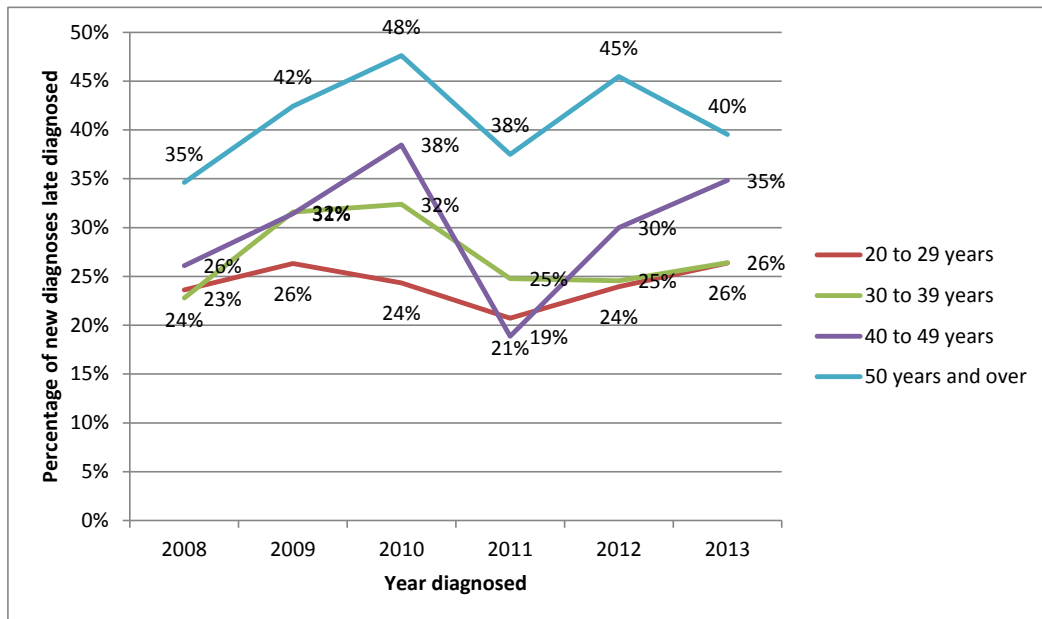
Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

\*Evidence of late diagnosis was defined as a CD4 count less than 350 cells/ $\mu$ L or an AIDS defining illness within three months of diagnosis, in the absence of a laboratory confirmed negative HIV test in the 12 months prior to diagnosis.

Among MSM newly diagnosed, the older the age group at diagnosis, the greater the percentage within each age group with evidence of late diagnosis (Figure 22). The 0 to 19 year age group were excluded from Figure 18 due to very low numbers.



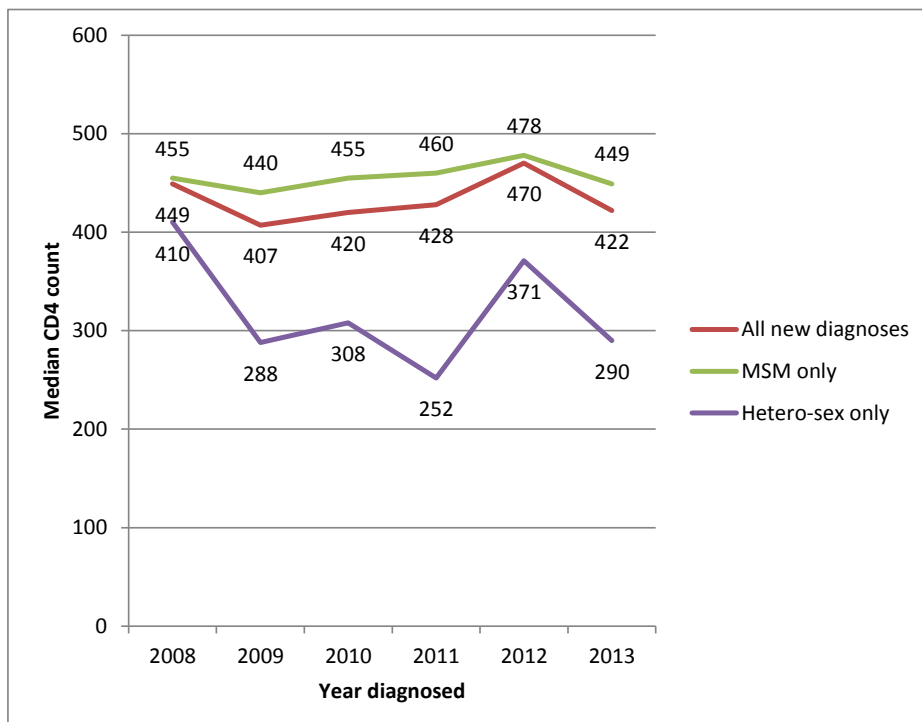
**Figure 22. Percentage of NSW residents newly diagnosed with HIV infection 1 January 2008 to 31 December 2013 who were MSM by age group and evidence of late diagnosis\***



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014.

The median CD4 count at diagnosis was higher for MSM compared with all new diagnoses and for new diagnoses reported to have resulted from heterosexual exposure to HIV (Figure 23).

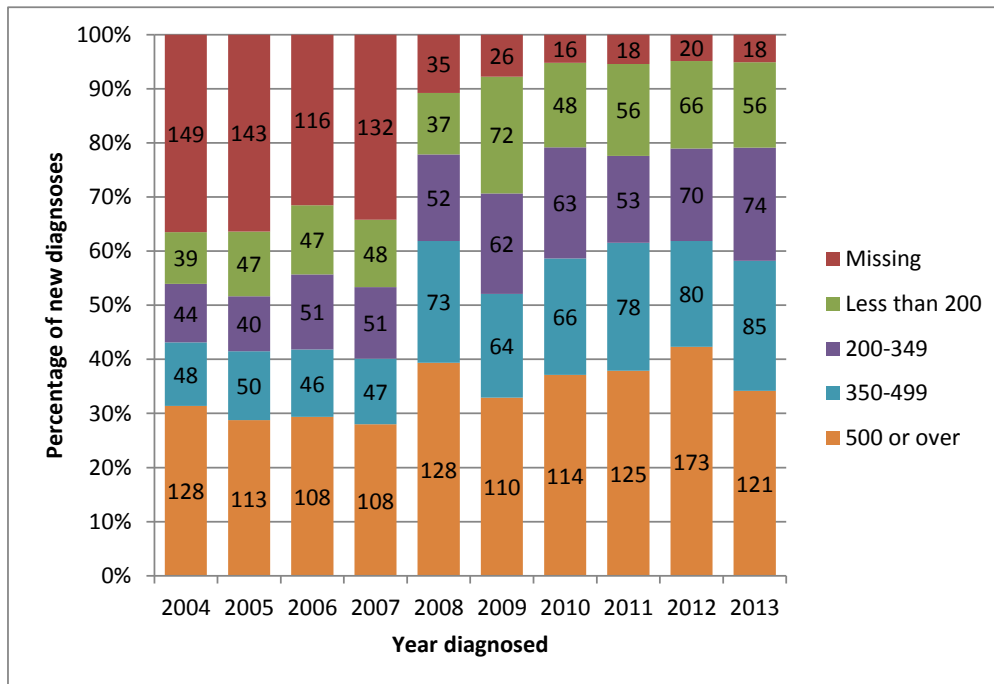
**Figure 23. Median CD4 count (cells/ $\mu$ L) among NSW residents newly diagnosed with HIV infection 1 January 2008 to 31 December 2013 for all new diagnoses and two major risk exposure groups**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

Among all 354 NSW residents newly diagnosed in 2013, 121 (34%) had a CD4 count at diagnosis of 500 or over, 85 (24%) 350 to 499, 74 (21%) 200 to 349, 56 (16%) less than 200 and 18 (5%) had no CD4 count at diagnosis reported (Figure 24). This was similar for each CD4 count category of the 2008 to 2012 five year period (38% had a CD4 count 500 or over, 21% 350 to 499, 18% 200 to 349, 18% less than 200 and 7% no CD4). In 2013 37% of new diagnoses had a CD4 less than 350, similar with 34% between 2008 and 2012.

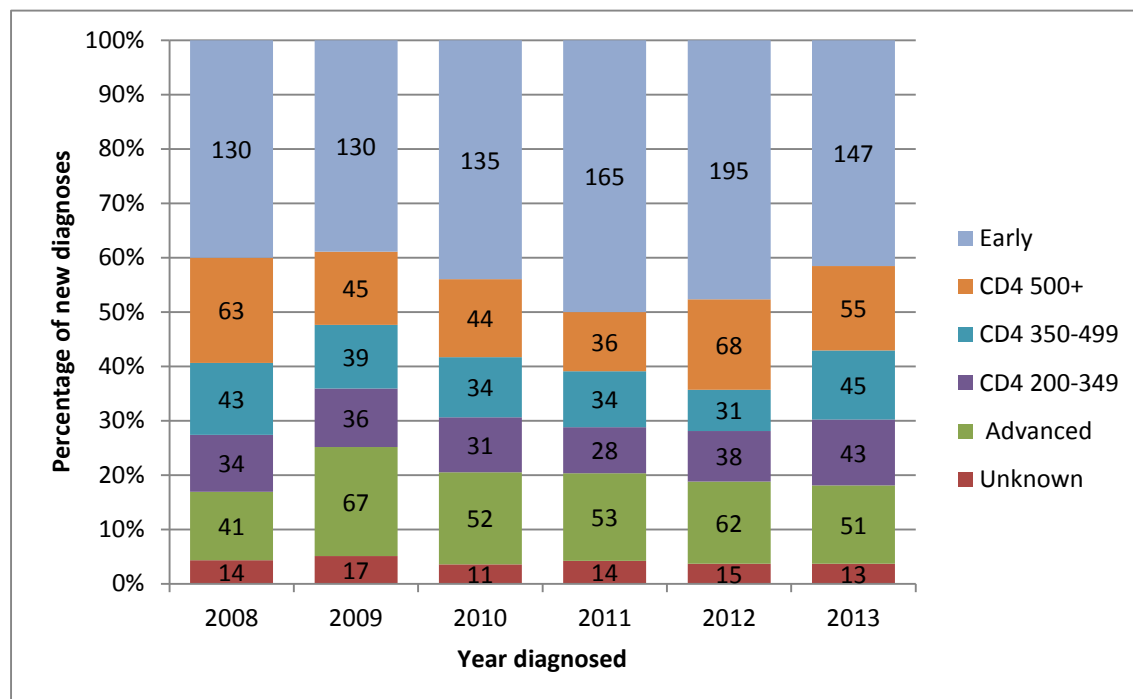
**Figure 24. CD4 count (cells/ $\mu$ L) at diagnosis among NSW residents newly diagnosed 1 January 2004 to 31 December 2013**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

Among all 354 NSW residents newly diagnosed in 2013, 147 (42%) had some evidence of early stage infection and 51 (14%) had some evidence of advanced stage infection, similar to the proportion thought to be in early (44%) and advanced (16%) stage infection at diagnosis from 2008 to 2012 (Figure 25).

**Figure 25. Proportion of NSW residents newly diagnosed with HIV infection 1 January 2008 to 31 December 2013 by stage of infection at diagnosis**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

\***Stage of infection** is currently defined as follows:

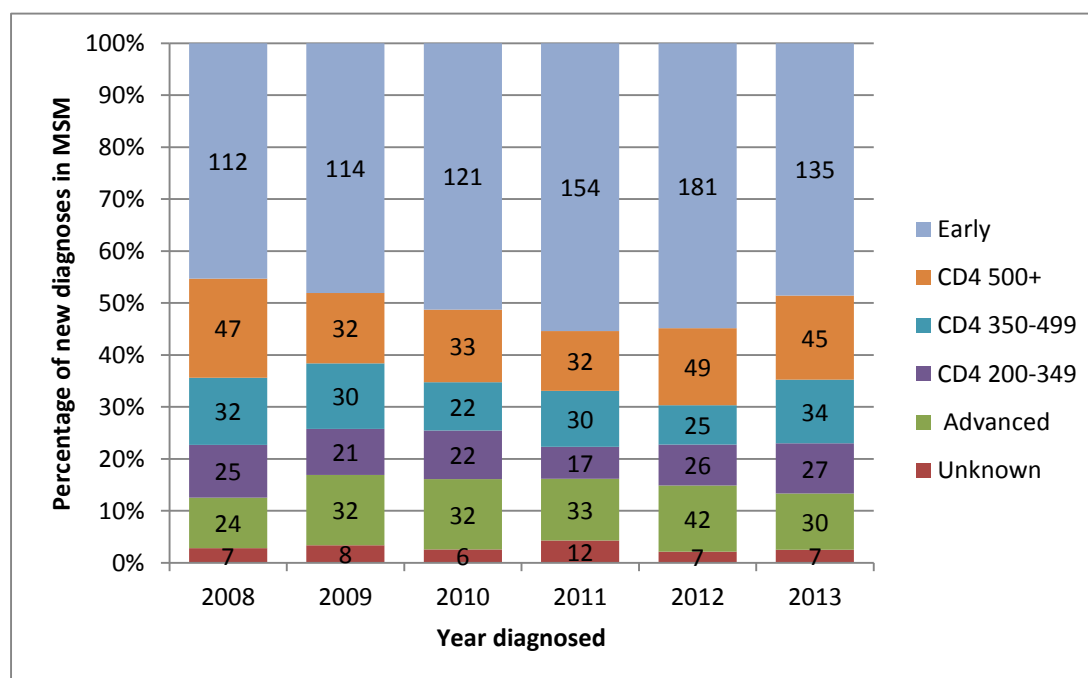
**Early** = Seroconversion like illness or a previous negative or indeterminate HIV test within 12 months of diagnosis, irrespective of CD4 count or report of an AIDS defining illness within three months of diagnosis.

**Advanced** = CD4 count < 200 cells/ $\mu$ L or an AIDS defining illness within three months of diagnosis, excluding "Early" category.

**CD4 200-349** and **CD4 350+** exclude "Early" and "Advanced" categories.

Among 278 MSM newly diagnosed in 2013, 135 (49%) had some evidence of early stage infection and 30 (11%) had some evidence of advanced stage infection, similar to the proportion of MSM thought to be in early (51%) and advanced (12%) stage infection at diagnosis for the 2008 to 2012 five year period (Figure 26).

**Figure 26. Proportion of NSW residents newly diagnosed with HIV infection 1 January 2008 to 31 December 2013 who were MSM, by stage of infection at diagnosis**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

\***Stage of infection** is currently defined as follows:

**Early** = Seroconversion like illness or a previous negative or indeterminate HIV test within 12 months of diagnosis, irrespective of CD4 count or report of an AIDS defining illness within three months of diagnosis.

**Advanced** = CD4 count < 200 cells/ $\mu$ L or an AIDS defining illness within three months of diagnosis, excluding "Early" category.

**CD4 200-349** and **CD4 350+** exclude "Early" and "Advanced" categories.

## 6. Doctors who made new HIV diagnoses in 2013

General medical practitioners unspecialised in HIV (GP non-ART prescriber) made 139 (39%) of the new diagnoses in NSW residents in 2013 and they referred two thirds of these people to sexual health clinics for ongoing management of HIV (Table 6). Doctors in sexual health clinics (SHC) made 102 (29%) of the new diagnoses and retained most of these clients. General medical practitioners specialised in HIV and specially registered to prescribe antiretroviral therapy (GP  $\leq$ 100) made 55 (16%) of the new diagnoses in 2013 and retained most of these clients. These GPs  $\leq$ 100 (the bulk of whom work in SES LHD) almost exclusively only diagnose HIV in MSM (Figure 27). Doctors within hospital settings made 45 (13%) of the new diagnoses. Most of the few (9) people diagnosed by immigration services were referred to a sexual health clinic for follow up.

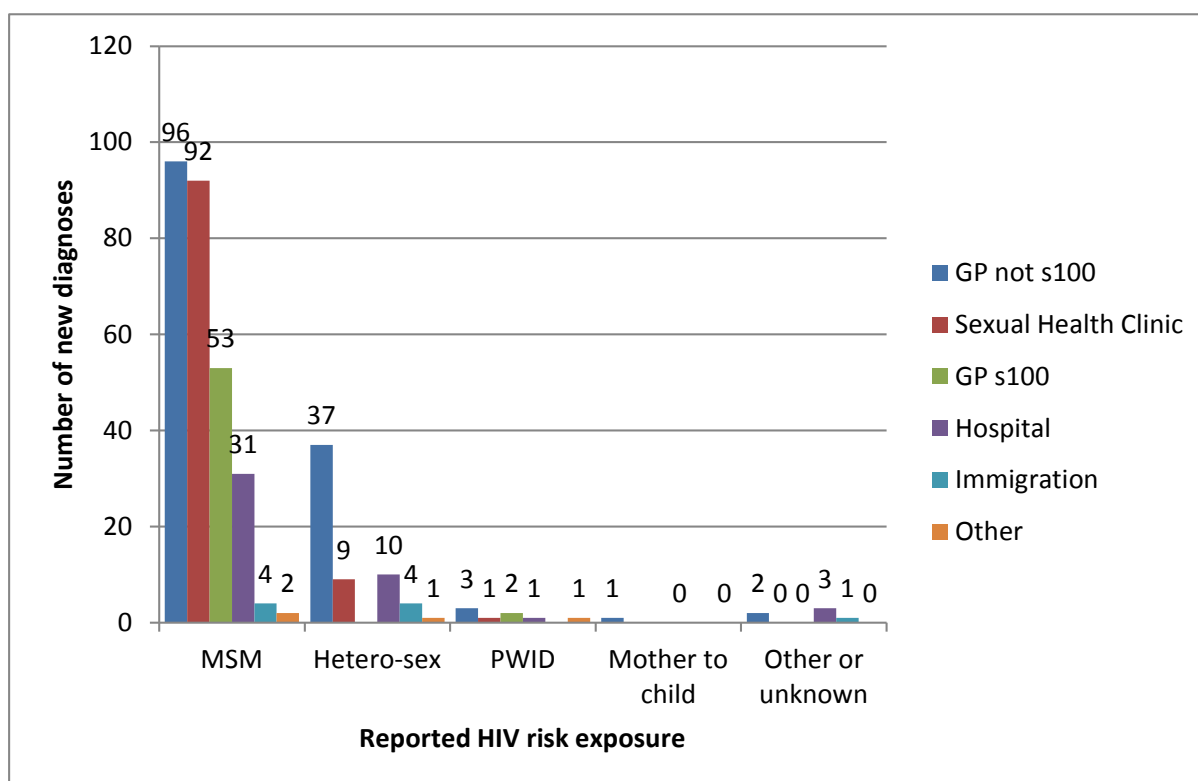
**Table 6. Type of diagnosing doctor of NSW residents newly diagnosed with HIV infection in 2013 and where people newly diagnosed were referred for ongoing management**

Type of diagnosing doctor	Referred to SHC		Referred to hospital		Referred to GP s100		Assumed to be retained by diagnosing service		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%
GP non-ART prescriber	87	63%	34	24%	13	9%	5	4%	139	39%
Sexual Health Clinic (SHC)	3	3%	0	0%	2	2%	97	95%	102	29%
GP s100*	3	5%	2	4%	2	4%	48	87%	55	16%
Hospital	3	7%	16	36%	2	4%	24	53%	45	13%
Immigration	8	89%	1	11%		0%	0	0%	9	3%
Other	3	75%	0	0%	0	0%	1	25%	4	1%
<b>Total</b>	<b>107</b>	<b>30%</b>	<b>53</b>	<b>15%</b>	<b>19</b>	<b>5%</b>	<b>175</b>	<b>49%</b>	<b>354</b>	<b>100%</b>

Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

\*\*A GP s100 is a private, general medical practitioner who is authorised to prescribe antiretroviral therapy under 'Section 100 – highly specialised drugs program' of the Pharmaceutical Benefits Scheme. Other or unknown include primarily forensics, interstate doctors and blood bank

**Figure 27. Type of diagnosing doctor of NSW residents newly diagnosed in 2013 by HIV exposure**



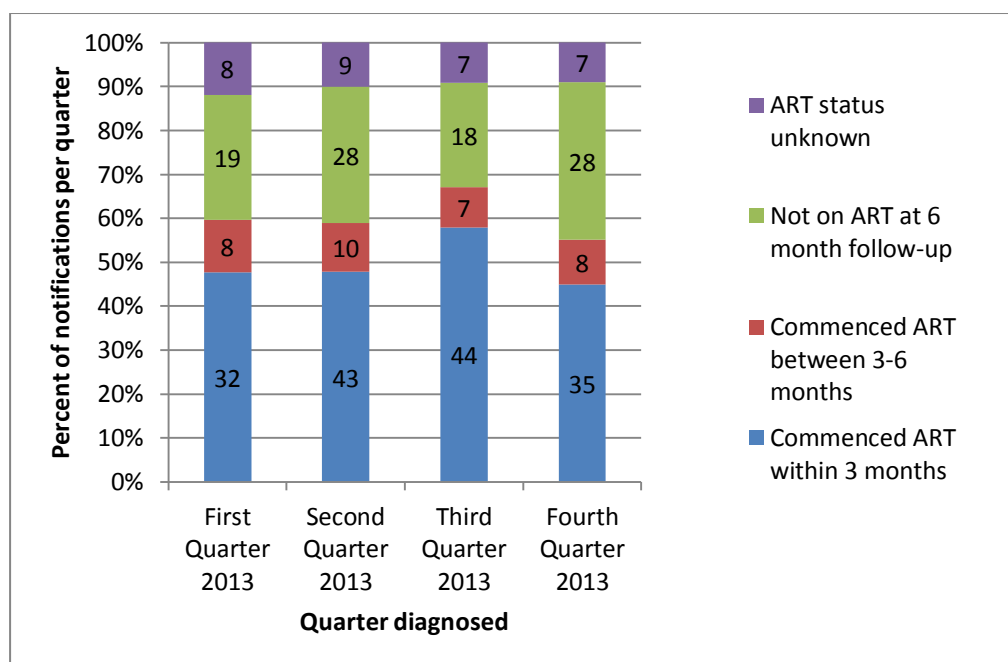
Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 2 August 2014

## 7. Uptake of antiretroviral therapy (ART) within six months of diagnosis and impact on HIV viral load

Data on initiation of ART is available from enhanced surveillance information collected about people newly diagnosed with HIV from 01 January 2013 onwards. Data on ART commencement, CD4 count and viral load at least six months post diagnosis is recorded via prescribing doctors who complete a standardised HIV six-monthly follow up form.

Of the 354 NSW residents newly diagnosed in 2013, 311 (88%) had a six-monthly follow-up form completed by their prescribing doctors at the time of this analysis. Of these 311 new diagnoses in 2013, 49% (153) had commenced ART within three months of diagnosis and 60% (186) had commenced ART within six months of diagnosis (Figure 28). For the 10% (31) for which ART status was unknown, all had 'No' as the answer for the question 'Is this patient currently in your care for HIV infection' on the follow-up form.

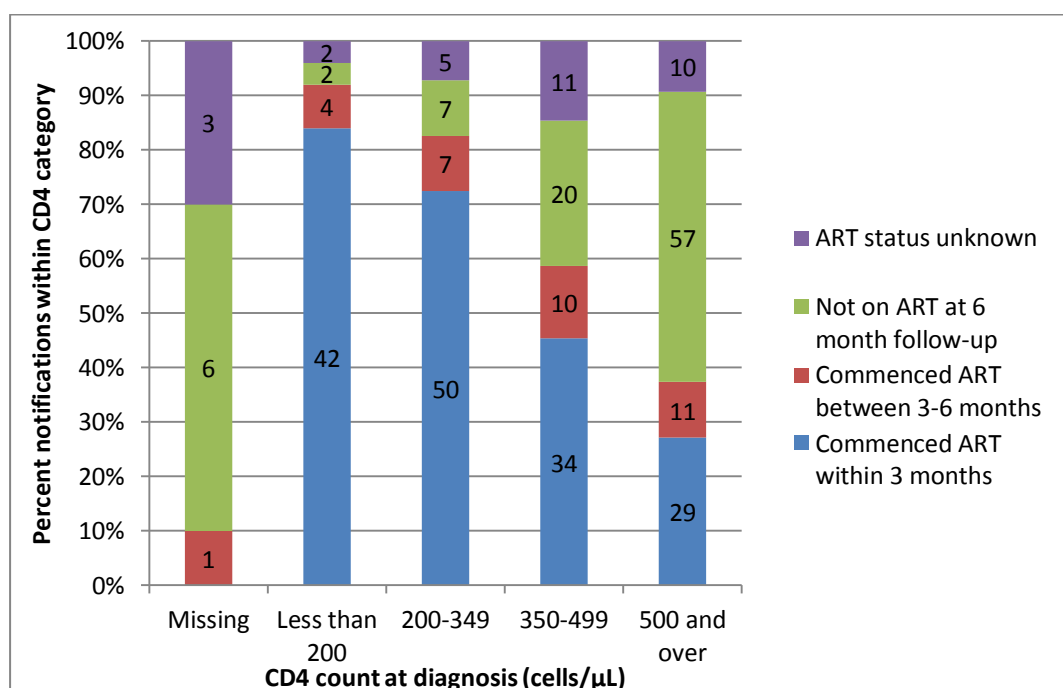
**Figure 28. Time from diagnosis to commencement of ART among 311 of 354 NSW residents newly diagnosed with HIV in 2013 and with six-monthly follow up completed, by quarter diagnosed**



Data source: NSW HIV/AIDS database, Health Protection NSW, extracted 13 November 2014

Of the 311 newly diagnosed persons for whom six monthly follow-up forms were available, 301 had results available for CD4 count at diagnosis. Of those with a CD4 count less than 200 cells/ $\mu$ L at diagnosis, 84% had commenced ART within three months of diagnosis and a further eight per cent had commenced ART within six months of diagnosis (Figure 29). Of those with a CD4 count at diagnosis between 201 and 500 cells/ $\mu$ L, 58.3% (84) had commenced ART within three months of diagnosis and a further 11.8% (17) had commenced ART within six months of diagnosis. Lower CD4 counts at diagnosis are associated with earlier commencement of ART. The PBAC restriction on the prescription of ART for asymptomatic people with HIV with a CD4 count less than 500 cells/ $\mu$ L was lifted in April 2014, by which time the majority of people diagnosed in 2013 had already been diagnosed more than six months previously.

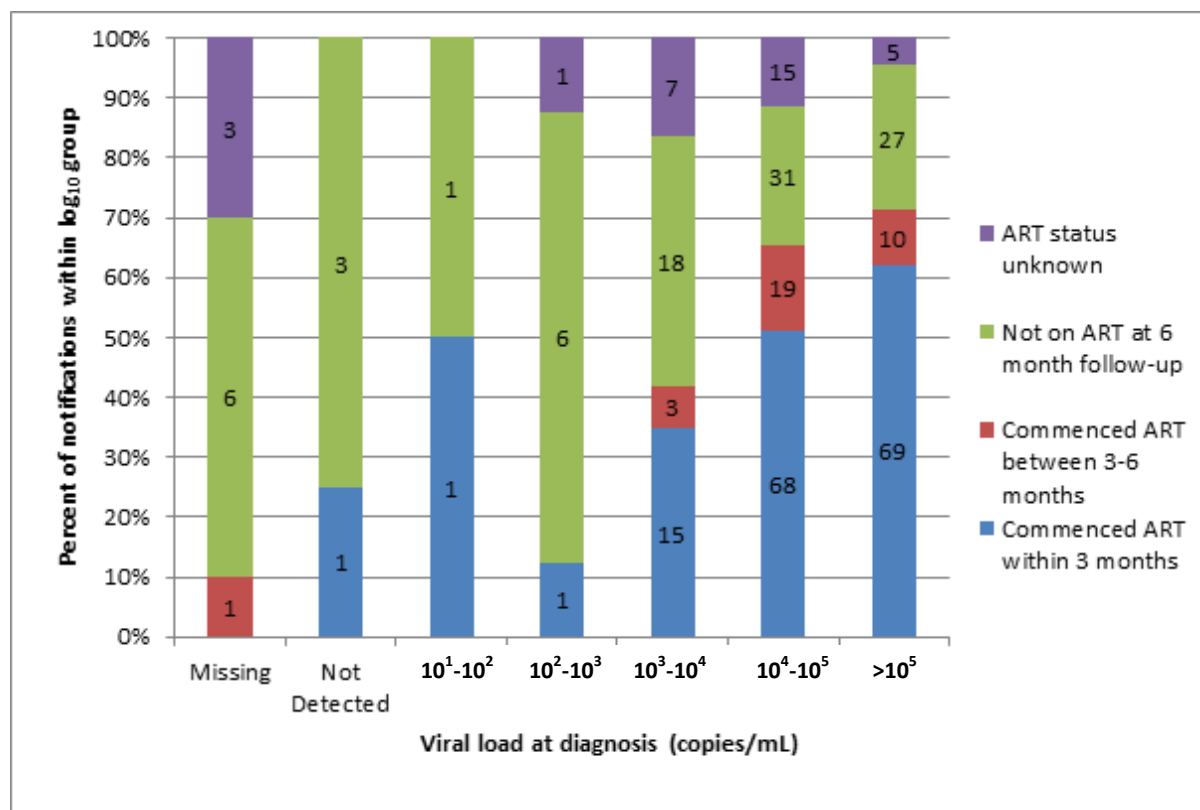
**Figure 29. CD4 count at diagnosis among 301 of 354 NSW residents newly diagnosed with HIV in 2013 who had a six-monthly follow up and CD4 count at diagnosis completed, by time to ART**



Date source: NSW HIV/AIDS database, Health Protection NSW, extracted 13 November 2014

Of the 311 newly diagnosed persons for whom six monthly follow-up forms were available, 301 had results available for viral load at diagnosis (Figure 30). Of those with a viral load at diagnosis greater than  $10^5$ , 62.2% had commenced ART within three months of diagnosis and a further 9% had commenced ART within six months of diagnosis. Of those with a viral load between  $10^2$  and  $10^5$  at diagnosis, 45.7% (84) had commenced ART within three months of diagnosis and a further 12% (22) had commenced ART within six months of diagnosis.

**Figure 30. Time from diagnosis to commencement of anti-retroviral therapy in NSW residents newly diagnosed with HIV in 2013 by viral load at diagnosis (n=311)**



Data source: NSW HIV/AIDS database, Health Protection NSW, extracted 13 November 2014

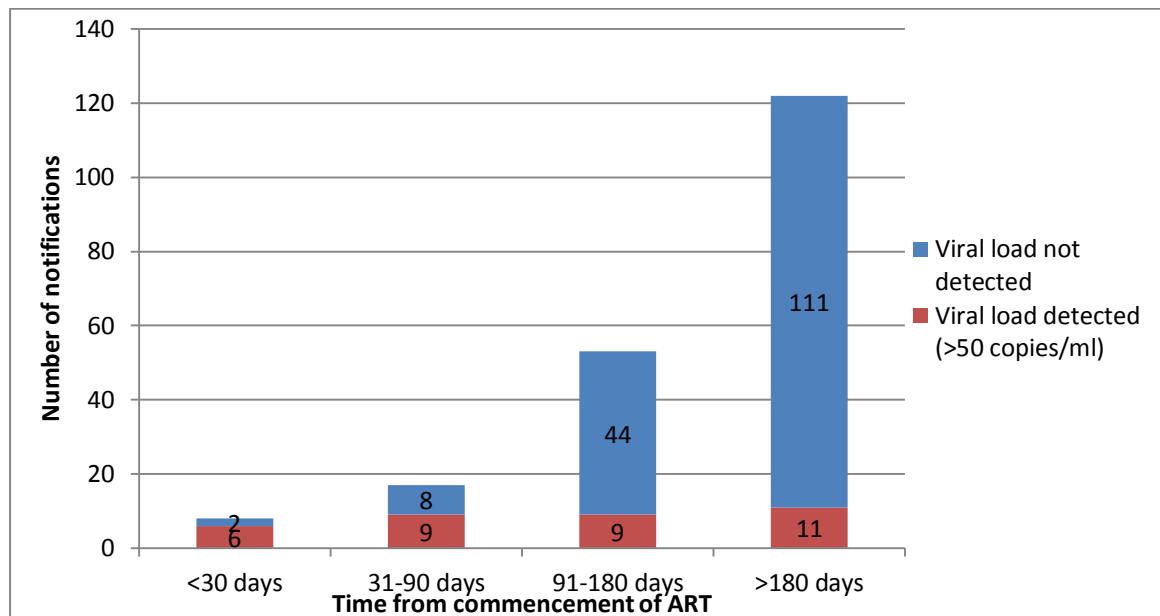
### Viral load after ART initiation

The goal of ART is to reduce the HIV viral load to both minimise the effects of the virus and reduce the risk of HIV transmission (Figure 31).

Of the 213 newly diagnosed people in 2013 on ART at six-monthly follow up, 200 had pre and post ART viral load results available. Time from ART commencement was calculated as difference in days between the most recent viral load specimen date and the date ART was commenced. The median time on ART was 224 days. Viral load not detected was defined as a viral load reported as  $\leq 50$  copies/ml or *Not Detected*. Viral load not detected was reported in 165 people (82.5%). Of the 11 people with a detectable viral load at a time point more than 180 days after commencement of ART, 36.4% (4) had a viral load less than 100 copies/ml, and 63.6% (7) had a viral load between 100 and 1,000 copies/ml.



**Figure 31. Number of people newly diagnosed with HIV in NSW in 2013 with a detectable or undetectable post ART viral load, by time from commencement of ART to follow-up\***

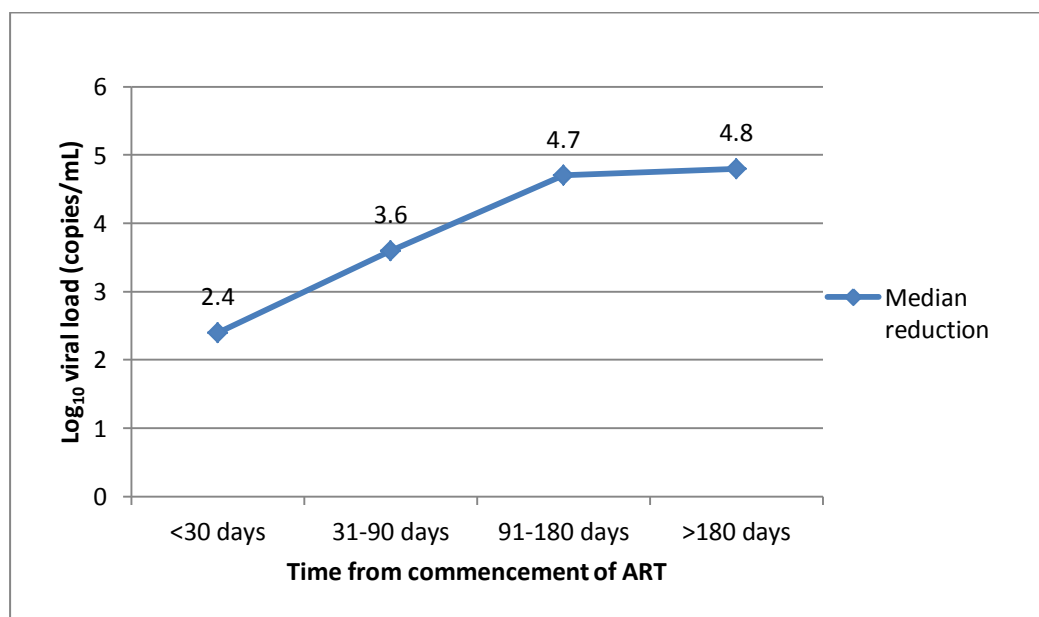


Data source: NSW HIV/AIDS database, Health Protection NSW, extracted 13 November 2014

\*Data on viral load was reported for 200 of 212 people newly diagnosed in 2013 on ART at six-monthly follow-up

Of the 213 newly diagnosed persons who had commenced ART, pre and post ART commencement viral load results were available for 200 (93.9%). Of these 60% (120) had been on ART for greater than 180 days. Change in viral load was calculated as the difference in  $\log_{10}$  viral load between pre-ART specimen and most recent (post-ART) specimen as reported on six monthly follow-up forms. Reduction in viral load was seen in all cases, the median reduction is shown (Figure 32). The median time between tests was 250 days. T-tests showed the difference in change between groups was statistically significant ( $p < 0.05$ ) for all comparisons except '91-180 days' vs '>180 days'.

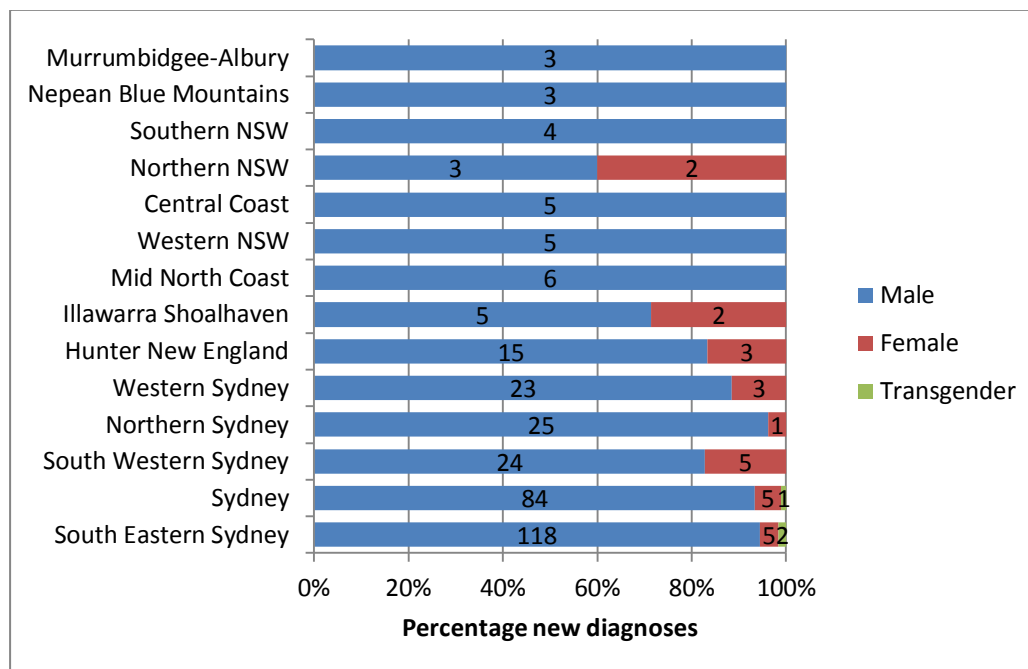
**Figure 32. Median reduction in viral load ( $\log_{10}$ ) by time from commencement of antiretroviral therapy; as reported at six monthly follow up (n= 199).**



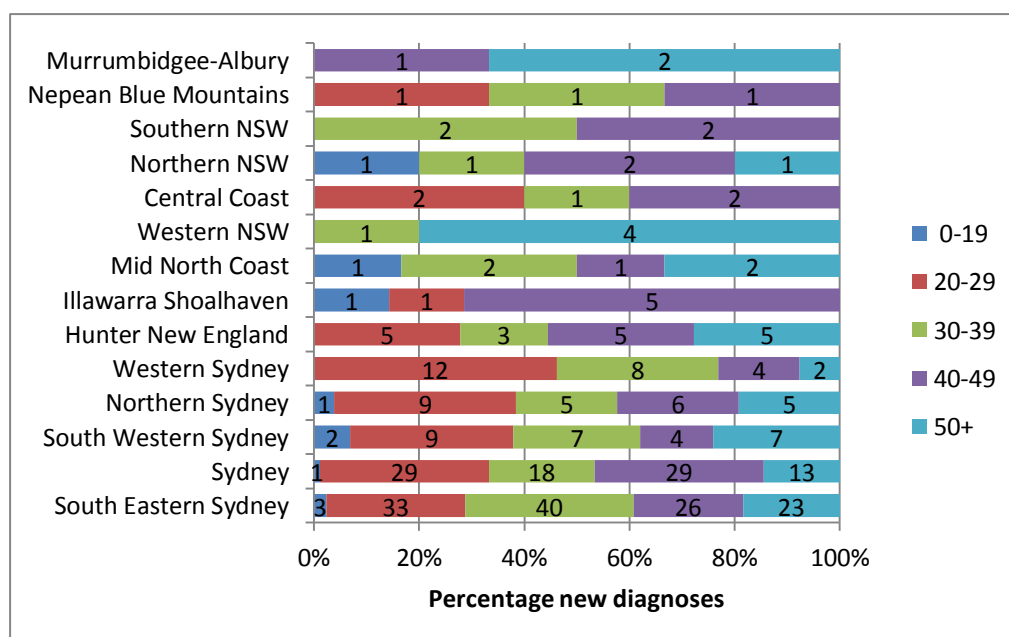
## 8. Local health district level data

The following figures describe characteristics of NSW residents newly diagnosed with HIV infection by their Local Health District (LHD) of residence. From the figures are excluded one new diagnosis made in Justice Health and one of unknown LHD.

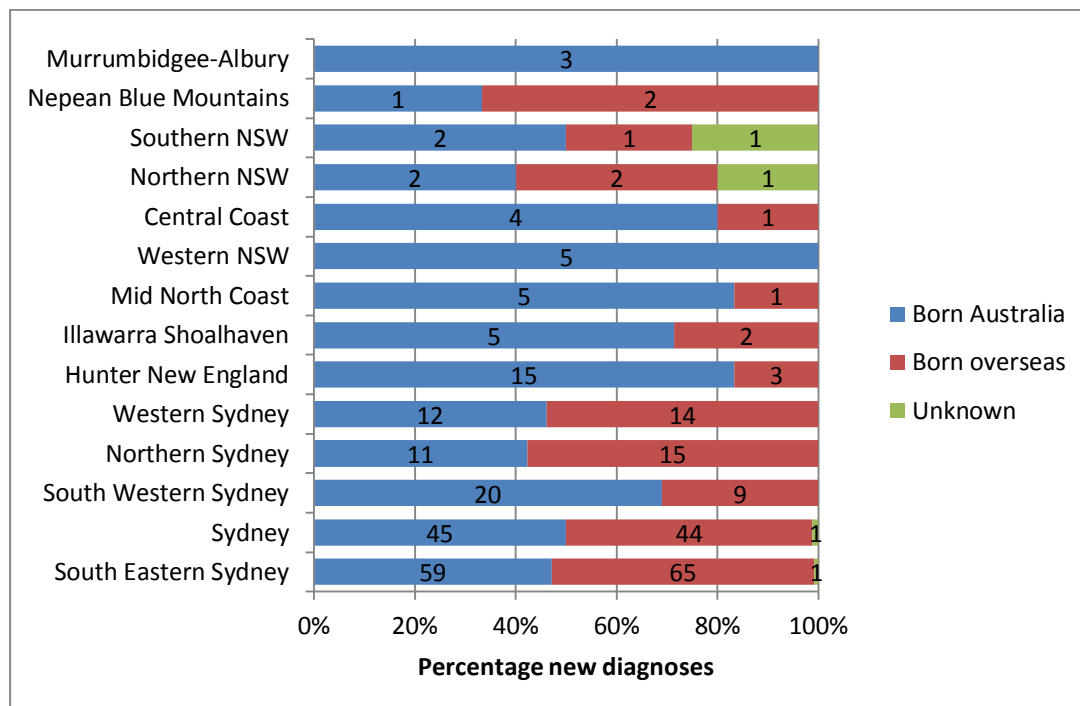
**Figure 33. Percentage of NSW residents newly diagnosed in each LHD in 2013 by gender**



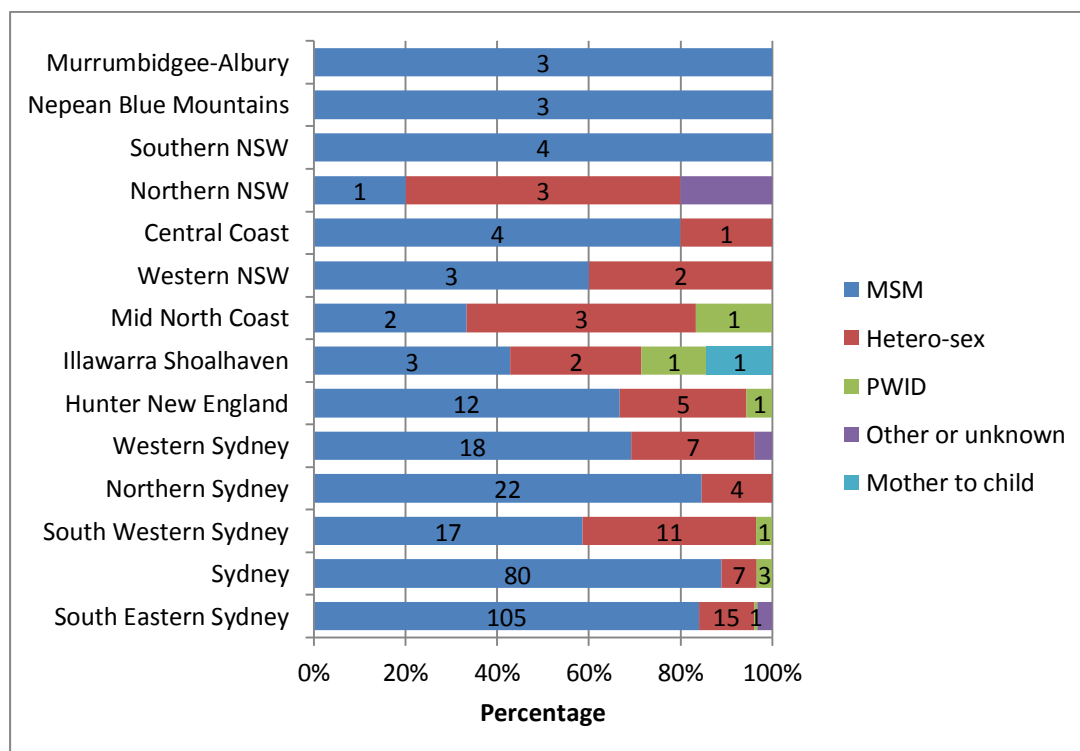
**Figure 34. Percentage of NSW residents newly diagnosed in each LHD in 2013 by age group**



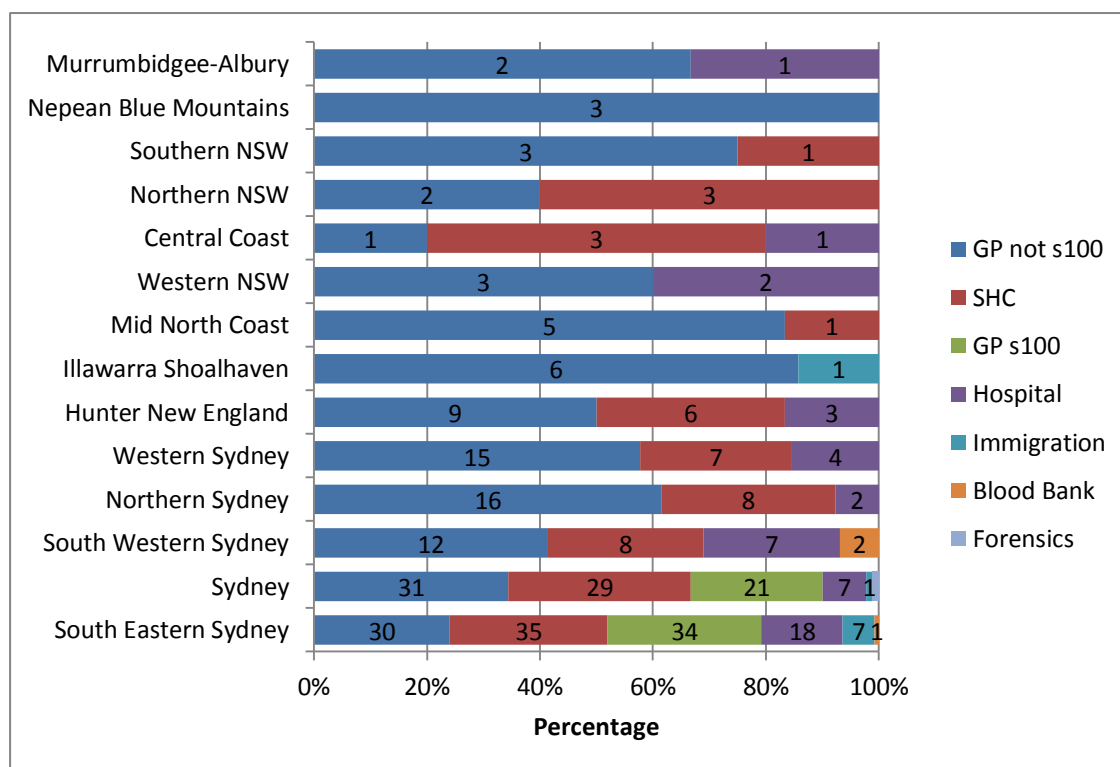
**Figure 35. Percentage of NSW residents newly diagnosed in each LHD in 2013 by place of birth**



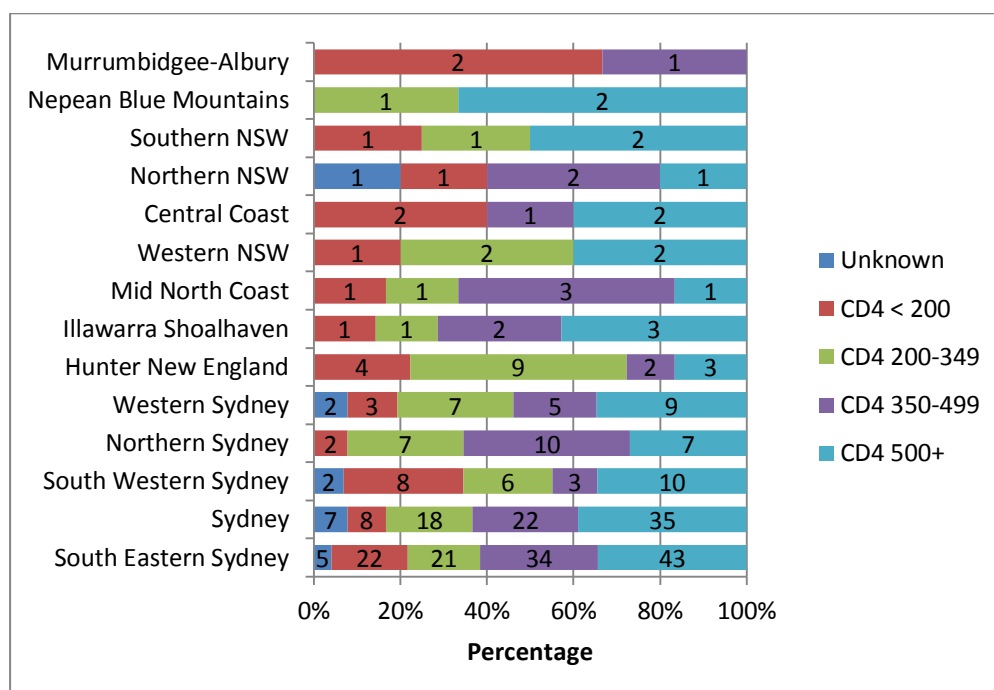
**Figure 36. Percentage of NSW residents newly diagnosed in each LHD in 2013 by HIV risk exposure**



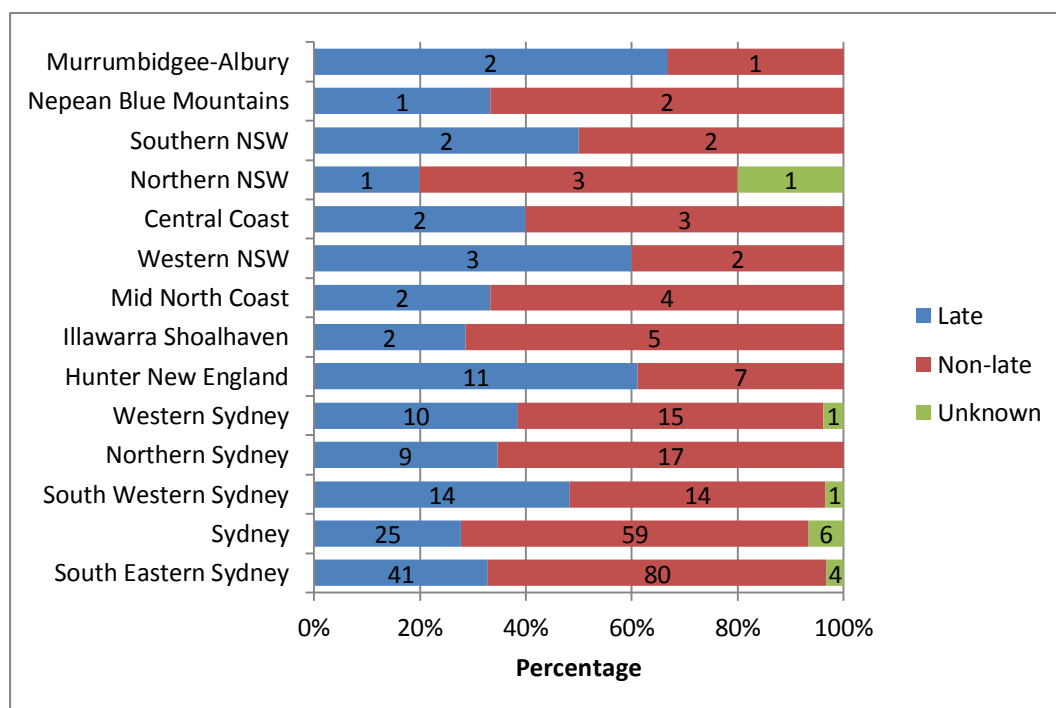
**Figure 37. Percentage of NSW residents newly diagnosed in each LHD in 2013 by type of diagnosing doctor**



**Figure 38. Percentage of NSW residents newly diagnosed in each LHD by CD4 count at diagnoses, 2013**



**Figure 39. Percentage of NSW residents newly diagnosed in each LHD by evidence of late or non-late diagnosis\* in 2013**



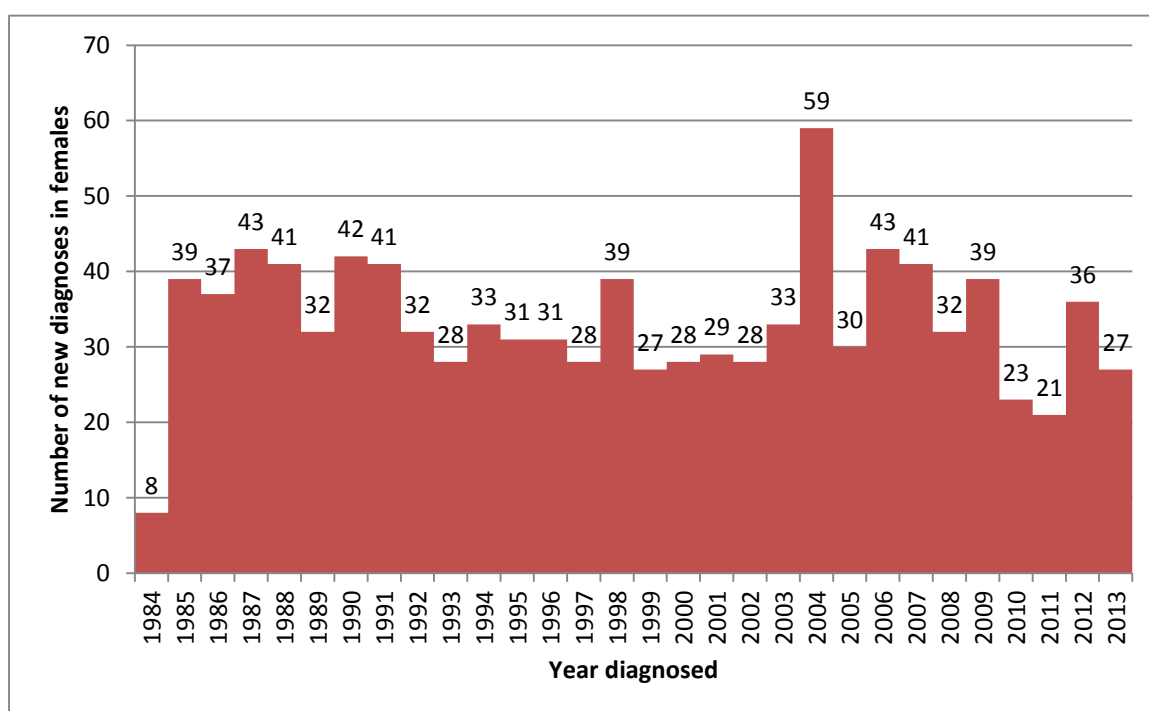
\*Evidence of late diagnosis was defined as a CD4 count less than 350 cells/ $\mu$ L or an AIDS defining illness within three months of diagnosis, in the absence of a laboratory confirmed negative HIV test in the 12 months prior to diagnosis.

## 9. Data on female NSW residents newly diagnosed with HIV infection to 31 December 2013

From 1984 to 2013, 1001 female NSW residents were newly diagnosed with HIV infection (Figure 40).

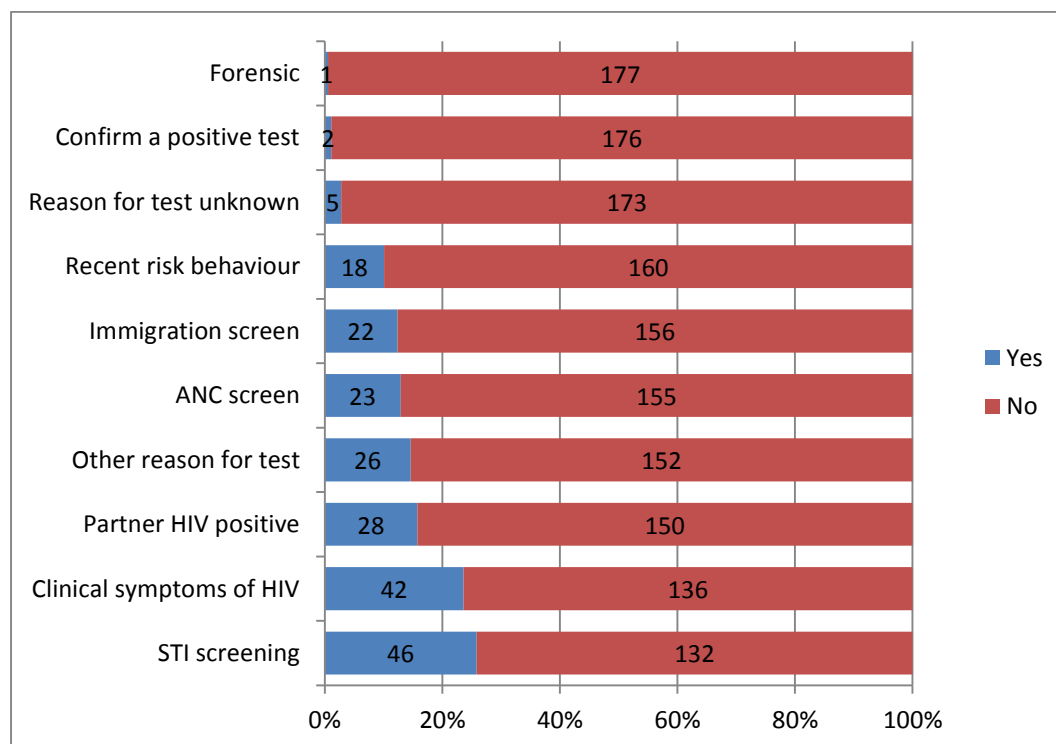
From 2008 to 2013, among 260 female NSW residents notified to NSW Health with HIV infection, 178 were newly diagnosed with HIV, 5 were prior diagnosed in NSW, 13 were prior diagnosed interstate and 64 were prior diagnosed overseas.

**Figure 40. Number of female NSW residents newly diagnosed with HIV infection 1 January 2004 to 31 December 2013 (n=1001)**



Between 1 January 2008 to 31 December 2013, 178 females resident in NSW were newly diagnosed with HIV infection; 13% were detected through routine antenatal (ANC) screening (Figure 41).

**Figure 41. Reported reasons for HIV testing of 178 females resident in NSW newly diagnosed with HIV infection 1 January 2008 to 31 December 2013**



**Comment**

- Several had more than one reason for testing stated
- 13% detected solely through ANC screening

**Table 7. Diagnosing doctor type of 178 females resident in NSW newly diagnosed with HIV infection 1 January 2008 to 31 December 2013, by age group at diagnosis**

Diagnosing doctor type	0-14 years (n=2)	%	15-49 years (n=154)	%	50 year or over (n=22)	%	All 2008-2013 (n=178)	%
GP non-ART prescriber	1	50%	64	42%	7	32%	72	40%
Hospital	1	50%	44	29%	11	50%	56	31%
Sexual Health Clinic	0	0%	29	19%	3	14%	32	18%
Immigration	0	0%	12	8%	0	0%	12	7%
Other	0	0%	3	2%	0	0%	3	2%
GP s100*	0	0%	2	1%	0	0%	2	1%
Coroner	0	0%	0	0%	1	5%	1	1%
<b>Total</b>	<b>2</b>	<b>100%</b>	<b>154</b>	<b>100%</b>	<b>22</b>	<b>100%</b>	<b>178</b>	<b>100%</b>

\*A GP s100 is a private, general medical practitioner who is authorised to prescribe antiretroviral therapy under 'Section 100 – highly specialised drugs program' of the Pharmaceutical Benefits Scheme. Other or unknown include primarily forensics, interstate doctors and blood bank

**Table 8. Demographic characteristics of 178 females resident in NSW newly diagnosed with HIV infection 1 January 2008 to 31 December 2013, by age group at diagnosis**

Characteristic	0-14 years (n=2)	%	15-49 years (n=154)	%	50 year or over (n=22)	%	All 2008-2013 (n=178)	%
<b>Aboriginal person status</b>								
<i>Aboriginal person</i>	0	0%	7	5%	2	9%	9	5%*
<i>Non-Aboriginal person</i>	2	100%	145	94%	20	91%	167	94%
<i>Not stated</i>	0	0%	2	1%	0	0%	2	1%
<b>Place of birth**</b>								
<i>Born in Australia</i>	0	0%	53	34%	9	41%	62	35%
<i>Non high prevalence country</i>	2	100%	49	32%	9	41%	60	34%
<i>High prevalence country</i>	0	0%	51	33%	3	14%	54	30%
<i>Unknown</i>	0	0%	1	1%	1	5%	2	1%
<b>Area of residence***</b>								
<i>Outer metro Sydney</i>	2	100%	74	48%	11	50%	87	49%
<i>Inner metro Sydney</i>	0	0%	45	29%	5	23%	50	28%
<i>Regional or rural NSW</i>	0	0%	32	21%	6	27%	38	21%
<i>Unknown, other</i>	0	0%	2	1%	0	0%	2	1%
<i>Justice Health</i>	0	0%	1	1%		0%	1	1%
<b>Total</b>	<b>2</b>	<b>1%</b>	<b>154</b>	<b>87%</b>	<b>22</b>	<b>12%</b>	<b>178</b>	<b>100%</b>

\*At time of 2011 Census there were 87541 Aboriginal women in NSW, making up 2.5% of the total female population in NSW (n=3508781). Aboriginal women are over represented among women newly diagnosed in the period.

\*\*Non high prevalence country: prevalence <1%; High prevalence country: country prevalence >=1%.

\*\*\*Inner metro LHDs: South Eastern Sydney, Sydney; Outer metro LHDs: Northern Sydney, South Western Sydney, Western Sydney, Central Coast, Illawarra Shoalhaven, Nepean Blue Mountains; Rural & Regional LHDs: Far West, Hunter New England, Mid North Coast, Murrumbidgee, Northern NSW, Southern NSW, Western NSW

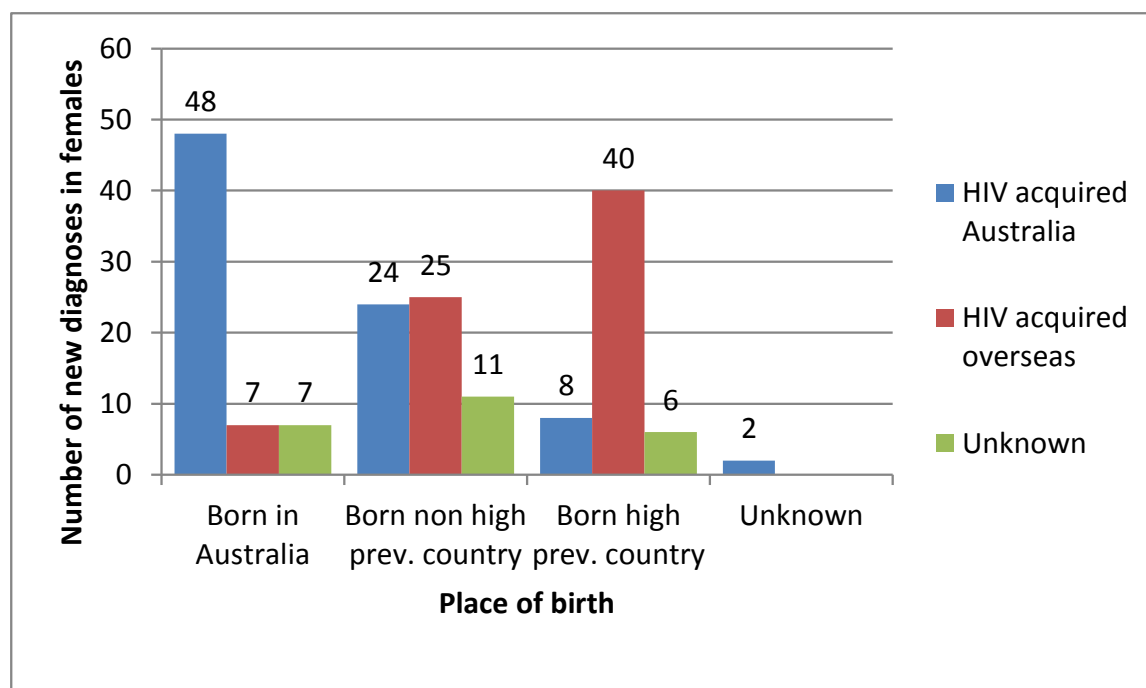
**Table 9. Self-reported HIV risk exposures among 178 females resident in NSW newly diagnosed with HIV infection 1 January 2008 to 31 December 2013, by age group at diagnosis**

HIV risk exposure	0-14 years (n=2)	%	15-49 years (n=154)	%	50 year or over (n=22)	%	All 2008-2013 (n=178)	%
<i>Hetero-sex</i>	0	0%	137	89%	19	86%	156	88%
<i>Person who injects drugs</i>	0	0%	11	7%	3	14%	14	8%
<i>Unknown</i>	0	0%	5	3%	0	0%	5	3%
<i>Mother to child</i>	2	100%	0	0%	0	0%	2	1%
<i>Other</i>	0	0%	1	1%	0	0%	1	1%
<b>Place likely acquired HIV</b>								
<i>Australia</i>	0	0%	69	45%	13	59%	82	46%
<i>Overseas</i>	2	100%	85	55%	9	41%	96	54%
<b>Total</b>	<b>2</b>	<b>1%</b>	<b>154</b>	<b>87%</b>	<b>22</b>	<b>12%</b>	<b>178</b>	<b>100%</b>



Of 62 Australian born females diagnosed 2008 to 2013, 48 (77%) likely acquired HIV in Australia (Figure 42). Of 60 females from a country with an estimated adult HIV prevalence of less than 1%, 24 (40%) likely acquired HIV in Australia. Of the 54 females born in a country with an estimated adult HIV prevalence of 1% or above, 8 (15%) likely acquired the infection in Australia. Overall 82 (46%) of 178 females newly diagnosed 2008-2013 likely acquired HIV in Australia.

**Figure 42. Place of birth and likely place acquired HIV infection among of 178 females resident in NSW newly diagnosed with HIV infection 1 January 2008 to 31 December 2013**



**Table 10. Stage of diagnosis characteristics of 178 females resident in NSW newly diagnosed with HIV infection 1 January 2008 to 31 December 2013, by age group at diagnosis**

Characteristic	0-14 years (n=2)	%	15-49 years (n=154)	%	50 year or over (n=22)	%	All 2008-2013 (n=178)	%
<b>Evidence of late diagnosis*</b>								
<i>Yes</i>	1	50%	64	42%	13	59%	78	44%
<i>No</i>	1	50%	85	55%	5	23%	91	51%
<i>Unknown</i>	0	0%	5	3%	4	18%	9	5%
<b>CD4 count at diagnosis</b>								
<i>Less than 200</i>	1	50%	34	22%	6	27%	41	23%
<i>200-349</i>	0	0%	31	20%	8	36%	39	22%
<i>350-499</i>	1	50%	31	20%	1	5%	33	19%
<i>500 and over</i>	0	0%	53	34%	3	14%	56	31%
<i>Unknown</i>	0	0%	5	3%	4	18%	9	5%
<b>Last negative HIV test</b>								
<i>&lt; 12 months ago</i>	0	0%	17	11%	1	5%	18	10%
<i>&gt;= 12 months ago</i>	0	0%	47	31%	8	36%	55	31%
<i>Never tested</i>	1	50%	57	37%	9	41%	67	38%
<i>Unknown</i>	1	50%	33	21%	4	18%	38	21%
<b>Total</b>	<b>2</b>	<b>1%</b>	<b>154</b>	<b>87%</b>	<b>22</b>	<b>12%</b>	<b>178</b>	<b>100%</b>

\*Evidence of late diagnosis was defined as a CD4 count less than 350 cells/ $\mu$ L or an AIDS defining illness within three months of diagnosis, in the absence of a laboratory confirmed negative HIV test in the 12 months prior to diagnosis.

### Key points on infections in female NSW residents to end 2013

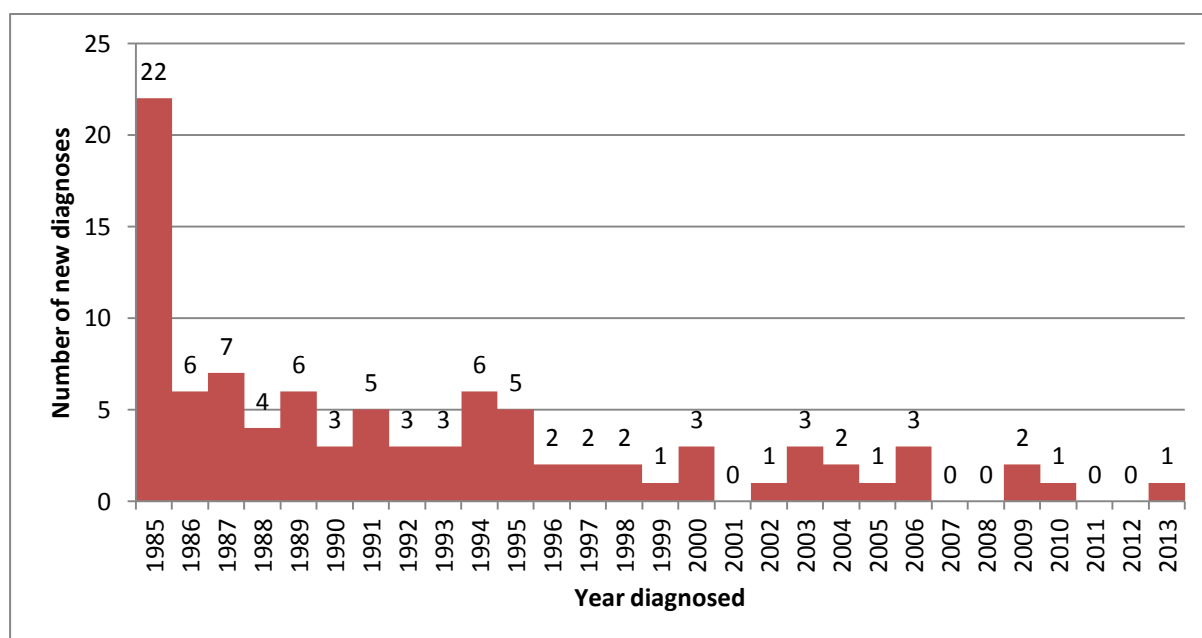
- In 2013, 27 of 354 (8%) new diagnoses were female. Females made up 10% of new diagnoses in the past ten years and the number of new diagnoses notified per year among females remains steady.
- Of 178 female NSW residents newly diagnosed between 2008 and 2013:
  - 23 (13%) were detected through ANC screening
  - 154 (87%) were 15-49 years of age at diagnosis
  - 9 (5%) were reported to be Aboriginal people (2.5% of the female population in NSW in 2011 were Aboriginal people)
  - 87 (49%) resided in outer metro Sydney, 50 (28%) inner metro Sydney and 38 (21%) in regional and rural NSW at the time of diagnosis
  - 60 (35%) were born in Australia
  - 156 (88%) reportedly acquired HIV through sexual intercourse
  - 82 (46%) acquired HIV in Australia
  - 78 (44%) had evidence of late stage diagnosis
  - 72 (40%) were diagnosed by a GP and 56 (31%) by a hospital doctor
  - 18 (10%) had a HIV test in the 12 months prior to diagnosis

## 10. Data on child NSW residents newly diagnosed with HIV infection to 31 December 2013

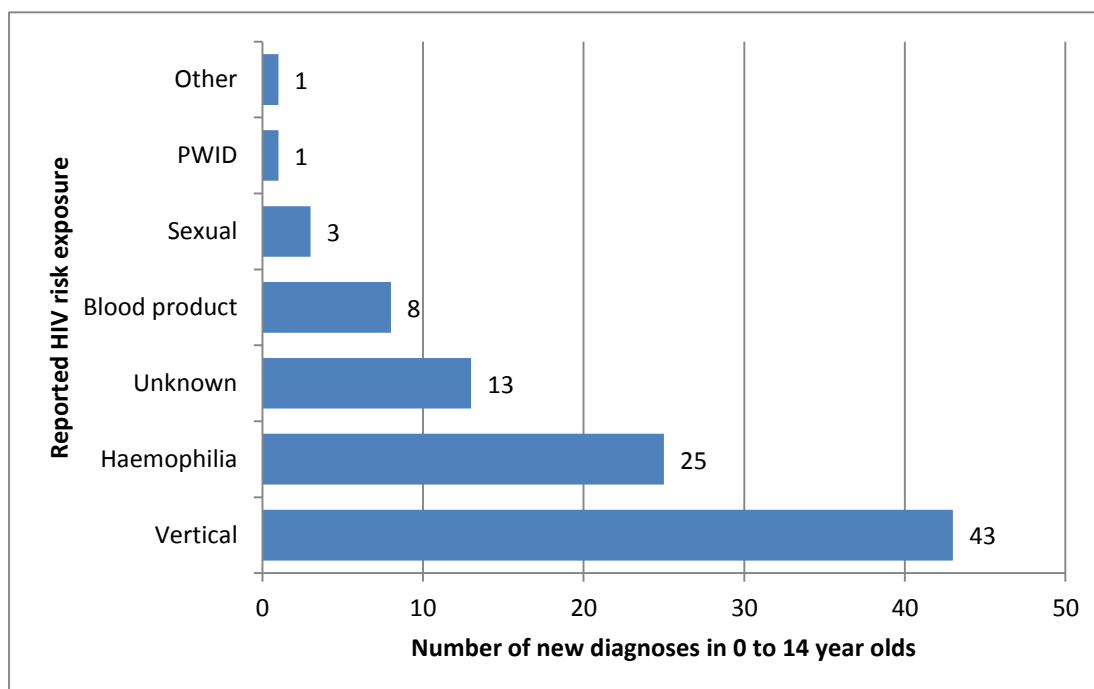
Of 94 children aged 0 to 14 years newly diagnosed with HIV in NSW Health from 1985 to 31 December 2013, 38 (40%) were under 5 years of age and 56 (60%) were 5 to 14 years of age. There have been 10 children newly diagnosed in the ten years 2004 to 2013 (Figure 43). The last locally acquired child infection occurred in 2010 through mother to child (vertical) transmission. Overall the 94 new diagnoses in children represent less than 1% of the total new HIV diagnoses in NSW to the end of 2013.

While notification of death in a person with HIV is vastly underreported, at least 20 of the 94 (21%) children newly diagnosed with HIV in NSW were reported to have died since diagnosis.

**Figure 43. Number of child NSW residents aged 0 to 14 years newly diagnosed with HIV infection 1 January 1985 to 31 December 2013 (n=94)**



**Figure 44. Number of child NSW residents aged 0 to 14 years newly diagnosed with HIV infection 1 January 1985 to 31 December 2013 (n=94), by reported mode of acquisition of HIV**



Of these ten new diagnoses in children in the past ten years 2004 to 2013, nine were acquired through vertical transmission; five of nine vertically acquired infections were born in Australia, with the last occurring in 2010. One of ten was reported to have occurred through sexual transmission.

#### **Key points on child NSW residents to end 2013**

- The number of new diagnoses in children 0 to 14 years remains very low, with an average of one case per year for the past 10 years. Child infections comprise less than 1% of all HIV new diagnoses in NSW
- Prevention of mother to child transmission of HIV strategies are highly successfully in allowing HIV positive mothers to have HIV negative babies.
- Of 94 children newly diagnosed with HIV in NSW, 38 (40%) were diagnosed when under 5 years of age and 56 (60%) were diagnosed between 5 to 14 years of age.
- The one child case diagnosed in 2013 was likely through mother to child transmission, which had occurred overseas
- Mother to child ('vertical') transmission remains the main mode of children acquiring HIV, though cases are rare. Appropriate treatment and care for mother and baby can prevent vertical transmission.