

# Epidemiology of HIV/AIDS in New Zealand



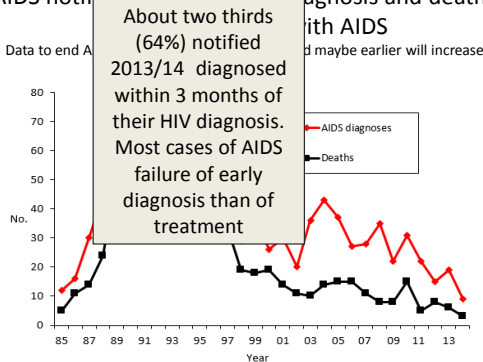
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AIDS Epidemiology Group  
University of Otago  
Dunedin

## AIDS Epidemiology Group established in 1989

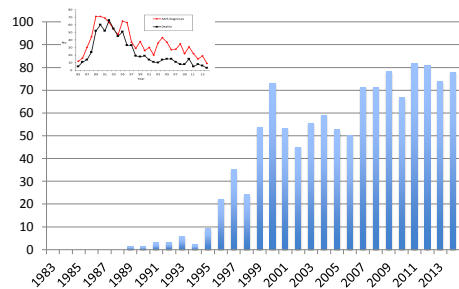
- Case reports of AIDS and HIV infection
- Prevalence Studies
- Behaviour surveillance



### AIDS notifications by year of diagnosis and deaths



### Percentage now believed alive by Year of AIDS diagnosis



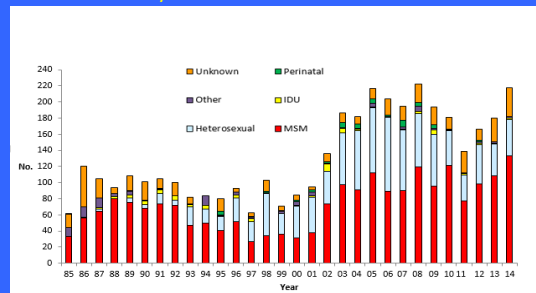
## HIV diagnoses

Since 1985 coded (not named) through Western blot confirmatory antibody testing:

- Initially age, gender, means of infection – if on request form
- From 1996, “Enhanced HIV surveillance” + ethnicity, place of infection etc. from clinician
- Since 2002, also information on people having a first viral load test who AEG did not know about through a Western blot
  - Initially mainly people diagnosed overseas, but in recent years clearly more diagnoses made in New Zealand without WB

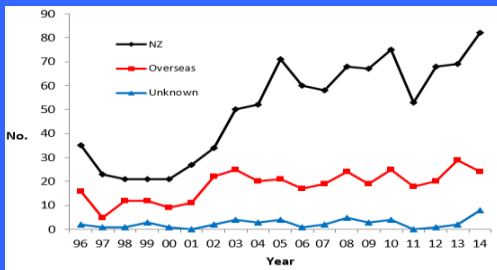
Year of diagnosis may not reflect year of infection so not incidence data

## Annual numbers newly found infected with HIV in New Zealand by mode of transmission - 1985-2014



Includes all HIV cases (N=4169) found by Western blot antibody (N=3452) and viral load testing (N=717) since 2002, and acquired in New Zealand, and overseas.

Annual numbers of MSM diagnosed with HIV in New Zealand, 1996-2014 by place of infection



Includes HIV cases diagnosed by Western Blot antibody and viral load testing

Age at diagnosis of MSM – 2010-2014

	2014	
	No.	%
15-19y	11	2.0%
20-29y	140	25.9%
30-39y	146	27.0%
40-49y	148	27.4%
50-59y	63	11.6%
>/=60y	33	6.1%
Unknown	3	
Total	544	

Ethnicity of MSM – 2010-2014

	No.	%
European	344	63.5%
Maori	50	9.2%
Pacific	19	3.5%
African	0	0.0%
Asian	83	15.3%
Other	46	8.5%
Unknown	2	
Total	544	

CD4 indicates stage of infection and some indication of duration

- 1 year after infection average CD4 = 500 cells/mm<sup>3</sup>
- 4 year after infection average CD4 = 350 cells/mm<sup>3</sup>
- 8 year after infection average CD4 = 200 cells/mm<sup>3</sup>

Initial CD4 count <350 = "Late diagnosis"

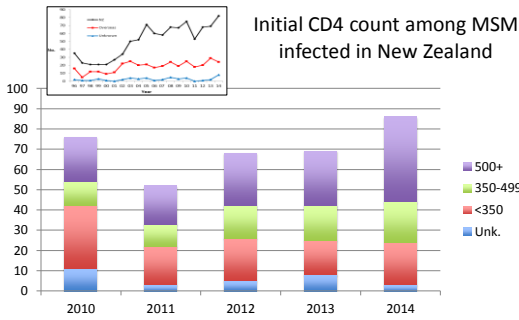
Lodi, Sara, et al. "Time from human immunodeficiency virus seroconversion to reaching CD4+ cell count thresholds < 350, < 350, and < 500 cells/mm3: assessment of need following changes in treatment guidelines." Clinical infectious diseases 53.8 (2011): 817-825.

Initial CD4 count among MSM by place of infection – 2010-2014

	Overall		Infected Overseas		Infected in New Zealand	
	No.	%	No.	%	No.	%
<350	171	42%	49	52%	122	39%
350-499	76	19%	11	12%	65	21%
500 or more	159	39%	35	37%	124	40%

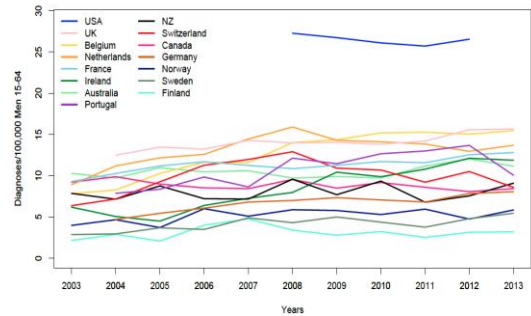
Initial CD4 among MSM infected in New Zealand annually 2010-2014

	2010		2011		2012		2013		2014	
	No.	%	No.	%	No.	%	No.	%	No.	%
<350	31	48%	19	39%	21	33%	17	28%	21	25%
350-499	12	18%	11	22%	16	25%	17	28%	20	24%
500+	22	34%	19	39%	26	41%	27	44%	42	51%



Increase in 2014 could be more focused testing or more new infections. Need to see what happens subsequently before reporting a trend .

International comparison of MSM diagnosis rate per 100,000 men aged 15-64



### HIV Prevalence among MSM

#### GAPSS 2011

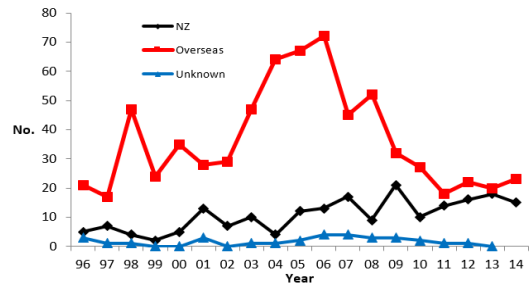
Prevalence based on oral fluid specimens

- Auckland residents = 6.0%
- Other New Zealand residents = 4.8%
- 21% undiagnosed (based on linked questionnaires)

International comparisons

- Lower than England, Australia, US, France
- Similar to Scotland

Annual numbers heterosexually acquired HIV newly diagnosed in New Zealand - 1996-2014



Includes HIV cases diagnosed by Western Blot antibody and viral load testing

Age at diagnosis heterosexually infected – 2010-2014

	Men		Women	
	No.	%	No.	%
15-19y	1	0.9	3	3.1
20-29y	18	16.2	28	28.9
30-39y	35	31.5	33	34.0
40-49y	27	24.3	21	21.6
50-59y	19	17.1	7	7.2
60y and over	11	10.0	5	5.2
Total	111	100	97	100

Ethnicity of men and women heterosexually infected Overseas and in New Zealand – 2010-2014

	Men				Women			
	Overseas		In New Zealand		Overseas		In New Zealand	
	No.	%	No.	%	No.	%	No.	%
European	29	40	21	68	12	21	16	41
Maori	2	3	1	3	0	0	8	21
Pacific*	3	4	3	10	2	4	6	15
African	15	21	3	10	21	37	5	13
Asian	21	29	2	7	17	30	4	10
Other	3	4	1	3	5	9	0	0
Total	73	100	31	100	57	100	39	100

\* Included PNG

Initial CD4 count of men and women heterosexually by pace of infection – 2010-2014

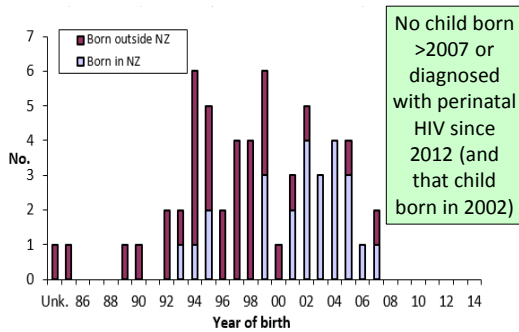
	Men Heterosexually infected				Women Heterosexually infected			
	Overseas		In New Zealand		Overseas		In New Zealand	
	No.	%	No.	%	No.	%	No.	%
<350	35	70%	9	41%	20	65%	21	58%
350-499	6	12%	6	27%	4	13%	4	11%
500 or more	9	18%	9	41%	7	23%	11	31%
Unknown	23		7		26		3	
Total	73		31		57		39	

People who inject drugs (PWID)

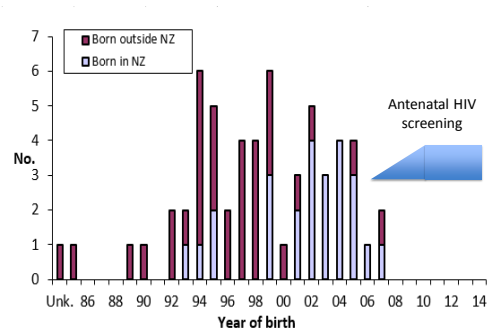
2.2% (n=84) of those with known means of infection reported through IDU  
 + 1.3% (n=48) IDU or homosexual contact

2013 - National Needle Exchange Blood-borne Virus Seroprevalence Study  
 HIV prevalence 0.3% based on testing >600 dried blood spot samples from needle exchange attendees

Perinatally acquired HIV – Year of Birth



Perinatally acquired HIV – Year of Birth



Pregnant women

Diagnosed through antenatal testing

- 7 in 2010-2014
  - Rates of AN testing 87% (July-Dec 2014)
- Approximately 1/50,000 pregnant women
  - Very much lower than was the estimated birth prevalence 1/5,000 in 2001-2005
    - based on number of children with perinatally acquired HIV born 2001-2005 and rate of MTCT of 25-30%.

Babies born to women with diagnosed HIV

128 births to women with diagnosed HIV prior to delivery in period 1998-2014

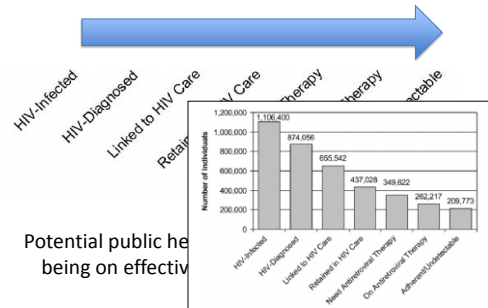
- None of the children infected
  - Some outcome information awaited

### Blood donors

Very low risk group  
2010-2014

- 2/80,642 = 0.25/10,000 first time donors HIV positive
  - One subsequently report same- sex contact

### Epidemiological Surveillance of Clinical Care



Potential public health benefit being on effective

#### New Zealand's HIV infected population under active follow-up during 2000

Graham Mills, Infectious Diseases Physician, Waikato Hospital; Anne-Marie Yardley, Medical Student, Auckland School of Medicine; Mark Thomas, Infectious Diseases Physician, Auckland Hospital; Tim Blackmore, Infectious Diseases Physician, Wellington Hospital; Alan Pitso, Infectious Diseases Physician, Christchurch Hospital; Bryan Schroeder, Scientific Officer, Virology Laboratory, Auckland Hospital; Nigel Dickson, AIDS Epidemiology Group, Department of Preventive and Social Medicine, University of Otago, Dunedin.

#### Abstract

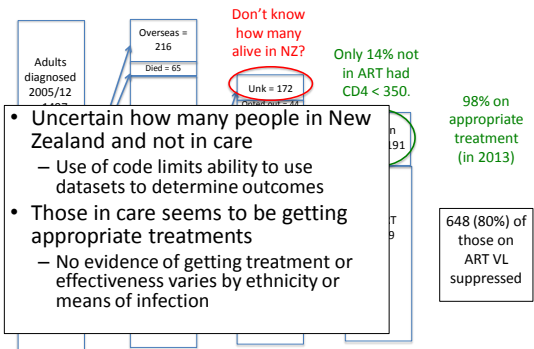
**Aim.** To audit New Zealand's HIV infected population currently under active follow-up.  
**Methods.** Multiple sources were used to determine anonymously the demographic and management characteristics of HIV infected individuals being monitored with HIV viral load measurements and/or receiving antiretroviral therapy during 2000.  
**Results.** 591 people (489 males and 112 females) were under active follow-up. The most common transmission risk was male homosexual contact (56%) followed by heterosexual contact (28%), injecting drug use (1%) and mother to infant transmission (1%). Ethnicity data showed a disproportionate number of Africans (13%) compared to recent census figures. Anti-retroviral therapy was used in

71% of the cohort of whom 62% had HIV viral load measurements below 400 copies/mL. An upper estimate of diagnosed HIV individuals living in New Zealand at 30/6/2000 was 801.  
**Conclusions.** This is the first time that the demographic and clinical state of HIV infected individuals has been assessed throughout New Zealand. The results suggest a slightly lower number of HIV infected individuals currently living in New Zealand than previously estimated. Anti-retroviral therapy is being used effectively within the HIV infected population. The changing demographics, with a higher proportion of people under care from Africa, increasing numbers of females, and an increase in the proportion with heterosexual risk factors are particular challenges.

### AEG attempted to examine the cascade for people diagnosed in 2005-2012

- Used Ministry of Health datasets (examined by MoH) and clinicians reports of being on treatment and in care
- Clinicians reports of VL and CD4 counts
- Using codes meant unsure of follow up for to 15% people.

### Outcome in 2013 of people diagnosed in 2005-2012

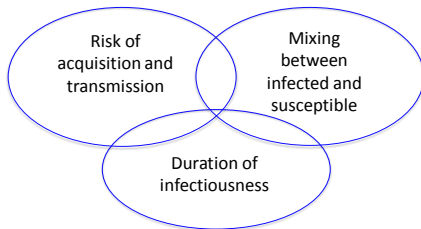


- Uncertain how many people in New Zealand and not in care
  - Use of code limits ability to use datasets to determine outcomes
- Those in care seems to be getting appropriate treatments
  - No evidence of getting treatment or effectiveness varies by ethnicity or means of infection

### Conclusion on current state of HIV epidemic in New Zealand

- HIV incidence pretty well controlled in New Zealand except among MSM (?+ Africans)
  - But diagnosis – and probable incidence - among MSM higher than in mid-1990s
    - Prevalence higher but treatment in diagnosed reduces infectivity
    - Disproportionate risk from undiagnosed, especially new infections

Are we optimally using all modalities to control spread by minimising...?



Is the environment conducive?

Observation 30 years on...

- Still a need to control incidence
- Clear where this needs to be focused
- We have more modalities
- Still high degree of commitment from staff of NGOs, clinicians and MoH staff working in partnerships that were fostered early

What I don't see so clearly is the political commitment to ensure HIV control remains a priority

## Acknowledgments

- Past and present member of AEG
- Gay Men's Health Group
- Laboratories
- Infectious disease and SHCs clinicians and support staff, GPs
- NZAF and other NGOs
- Ministry of Health
- Sponsors of the 30<sup>th</sup> Anniversary Meeting and ASHM