

HIV testing

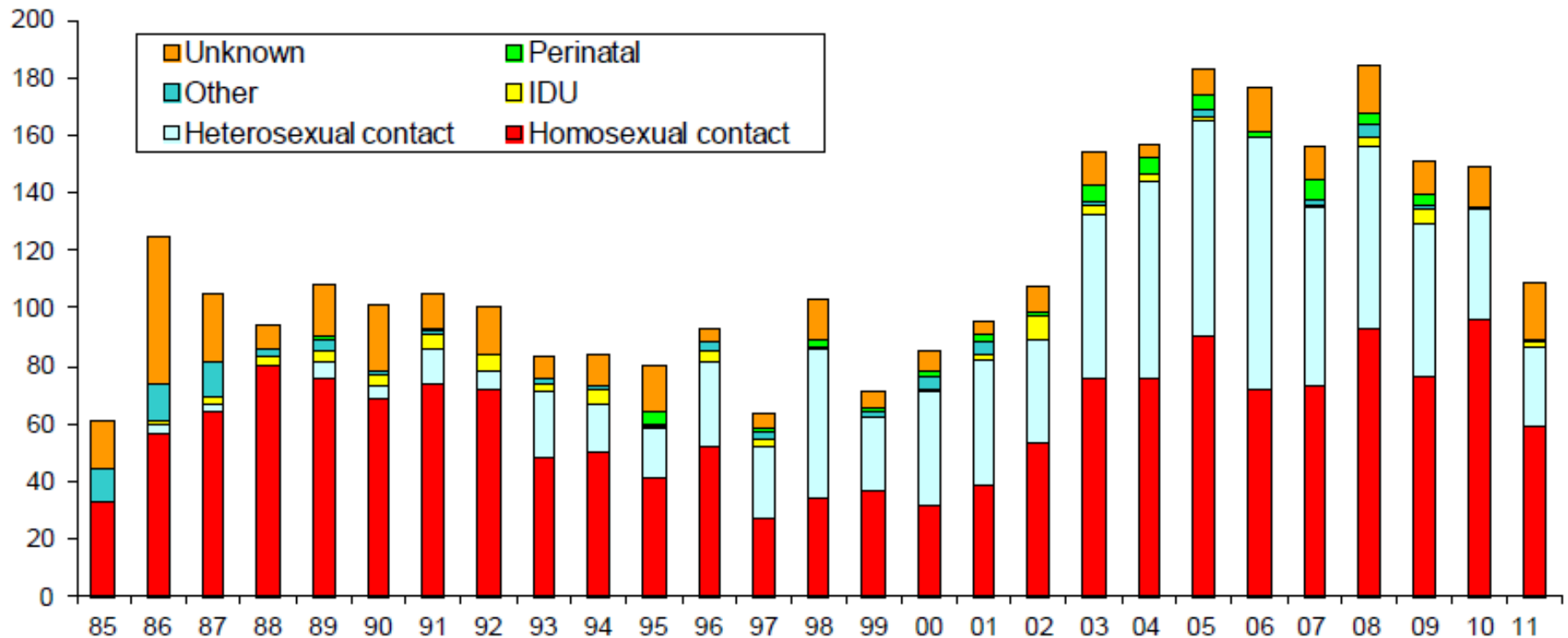
Simon Briggs

Case

- 30 year old Chinese man
- Works for an airline company
- Gay man with “many” sexual partners during the last four years (protected & unprotected)
- Occasional use of methamphetamine and ecstasy
- Saw his GP in February 2012 asking for an HIV test, test returned showing he had HIV infection

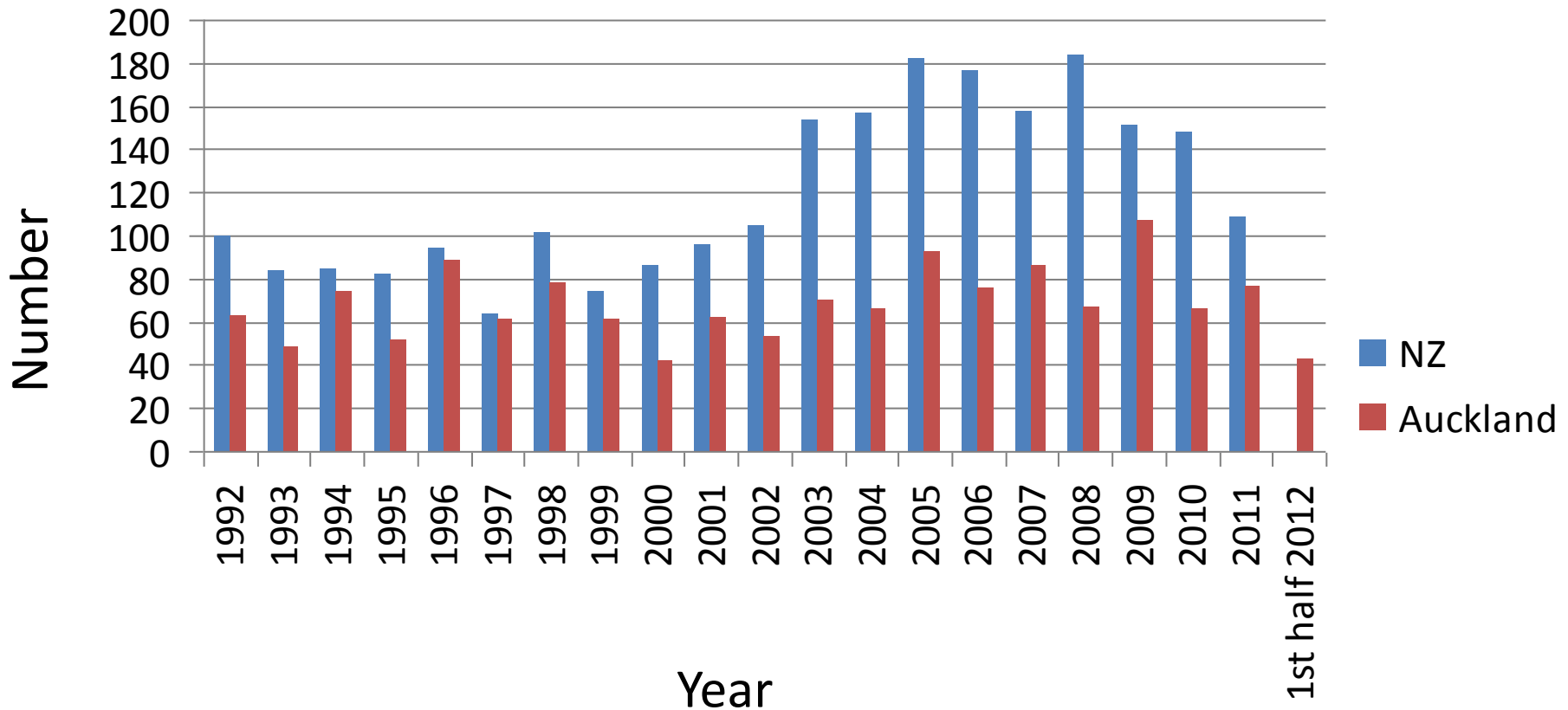
- CD4 count (February 2012) 290 (15%)
- Last negative HIV test September 2008 when he presented to his GP with gonorrhoea (had just returned from China where he had unprotected anal sex)
- Admitted to an Auckland Hospital in October 2008
 - ***“viral illness causing headache, fever, rash and pharyngitis”***
 - thrombocytopenic, lymphopenic
 - normal head CT and lumbar puncture
 - no HIV test

Number of people diagnosed with HIV infection in NZ by year of diagnosis



Source: http://dnmeds.otago.ac.nz/departments/psm/research/aids/pdf/69_AIDS-NZ_March_2012.pdf

New diagnoses in NZ compared to new referrals to ACH ID 1992 to 2012



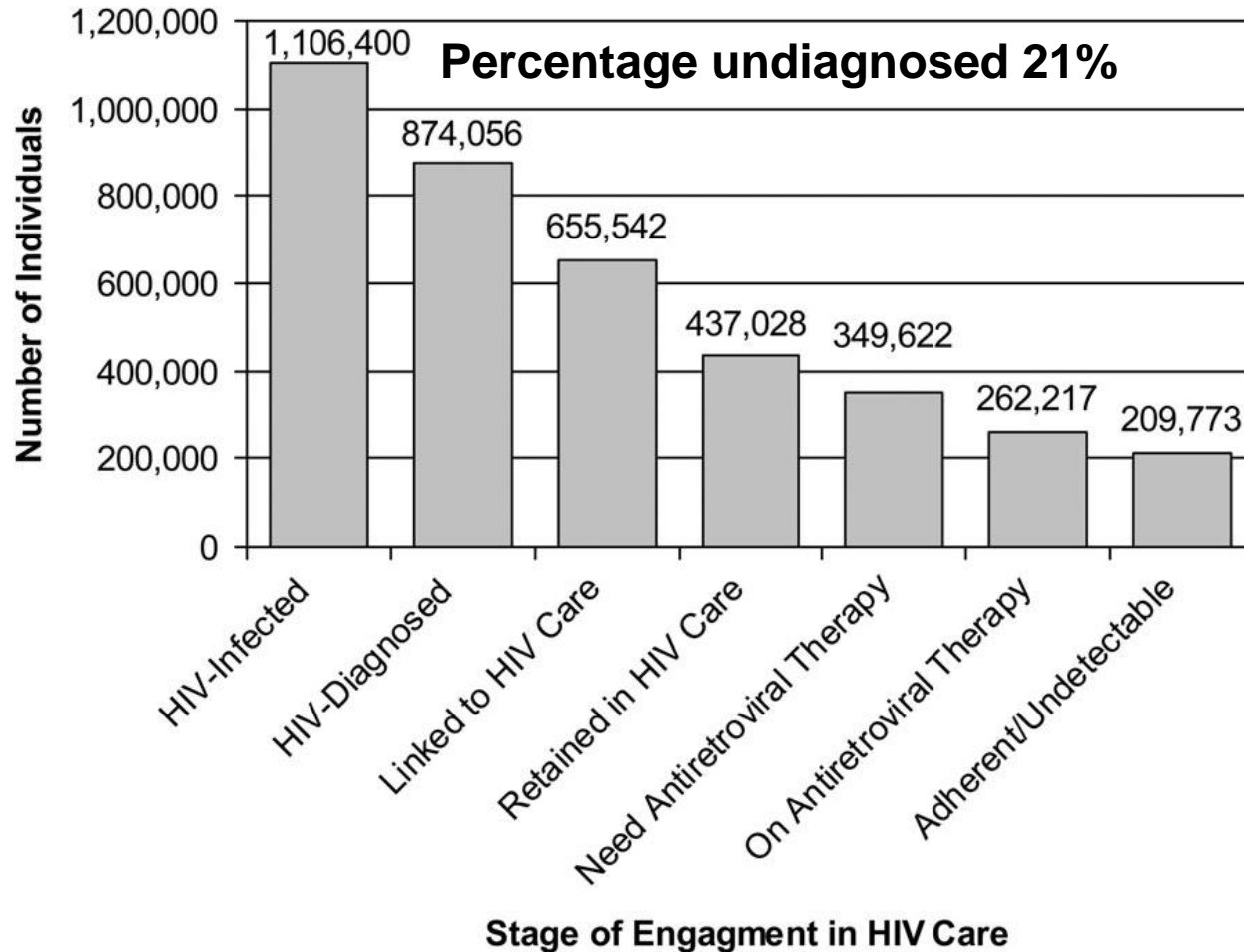
Actual and undiagnosed HIV prevalence in MSM in Auckland

Saxton et al. BMC Public Health 2012;12:92

- Recruitment at gay community fair, three gay bars and four sex-on-site venues
- N = 1049
- 68 (6.5%) found to have HIV infection
- 67 of these completed the study questionnaire
 - 53 (79%) had been diagnosed with HIV infection
 - 14 (21%) had undiagnosed HIV infection
- Prevalence of undiagnosed HIV infection in this population was 1.3%

HIV infection in the United States 2006

Gardner et al. Clin Infect Dis 2011;52:793



Late presentation of HIV infection in NZ 2005-2010

Dickson et al. HIV Med 2012;13:182

Means of infection	Total with CD4 count available	Late presentation (CD4 < 350 cells/mm ³)	Advanced HIV disease (CD4 < 200 cells/mm ³)
MSM	374	153 (41%)	93 (25%)
Heterosexual	202	127 (63%)	85 (42%)
Other	10	8 (80%)	6 (60%)
Unknown	20	15 (75%)	10 (50%)
Total	606	303 (50%)	194 (32%)

Summary

- The number of new diagnoses of HIV infection in NZ appear to be falling
- The number of new referrals per year to Auckland ID appear to be stable
- Approximately one fifth of MSM in Auckland with HIV infection are undiagnosed
- Half of those with HIV infection diagnosed in NZ 2005-2010 were diagnosed “late”

Benefits of earlier diagnosis

- Reduced morbidity and possibly mortality for those with HIV infection
- Reduced risk of HIV transmission (condoms +/- antiretroviral treatment)

Who should we be testing?

- Some recommend testing everyone
 - CDC has recommended opt-out testing since 2006
- “Risk based” screening
 - those from countries with a high prevalence of HIV infection
 - MSM
 - pregnant women
 - everyone who is having a sexual health screen

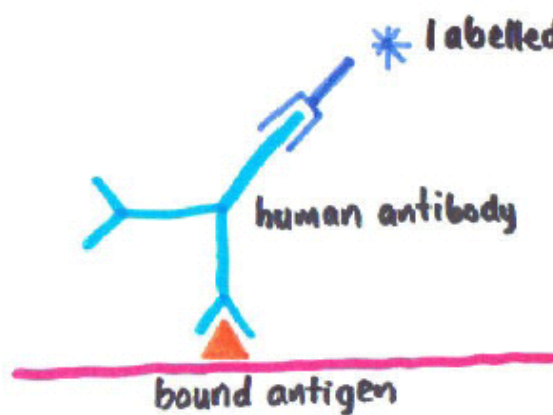
- “Risk based” screening cont.
 - those with indicator conditions
 - recurrent pneumonia, respiratory tract infections
 - shingles
 - cervical smear abnormalities
 - anal cancer
 - significant “viral infections” (acute retroviral syndrome)
 - thrombocytopenia
 - tuberculosis

Testing

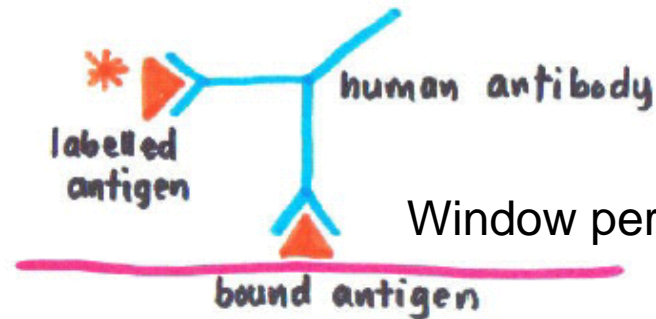
- EIA
- Western Blot
- Rapid tests

EIA, p24 antigen assay

Indirect binding assay
(1st / 2nd generation assay)

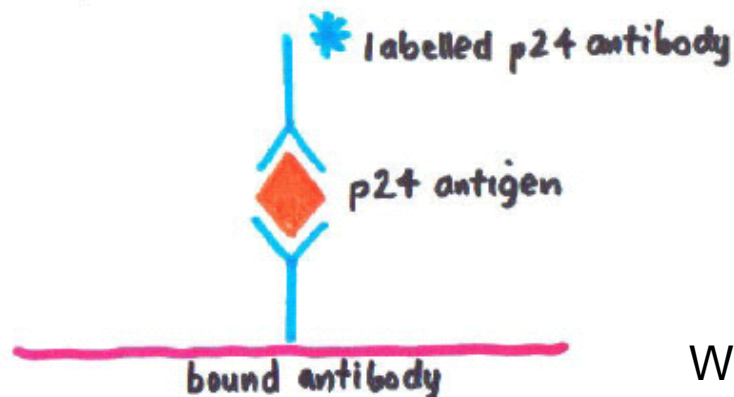


Double antigen sandwich assay
(3rd generation assay)



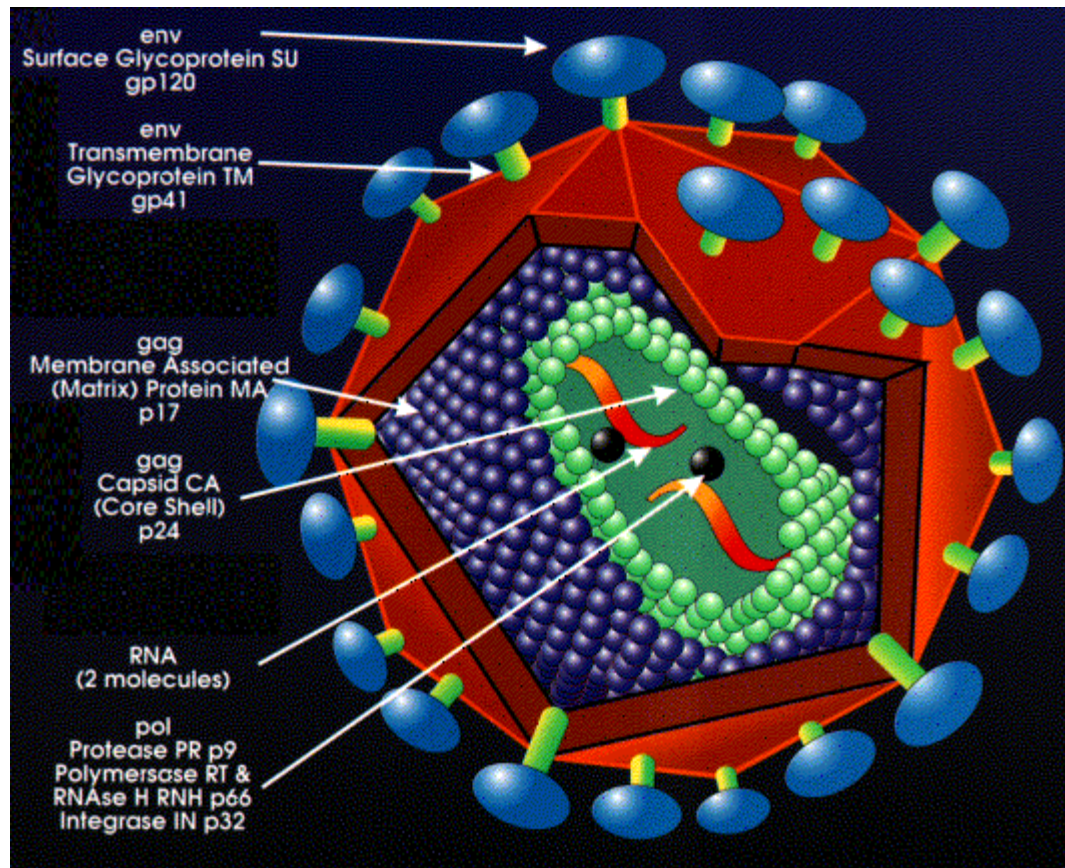
Window period 3-4 weeks

p24 antigen assay



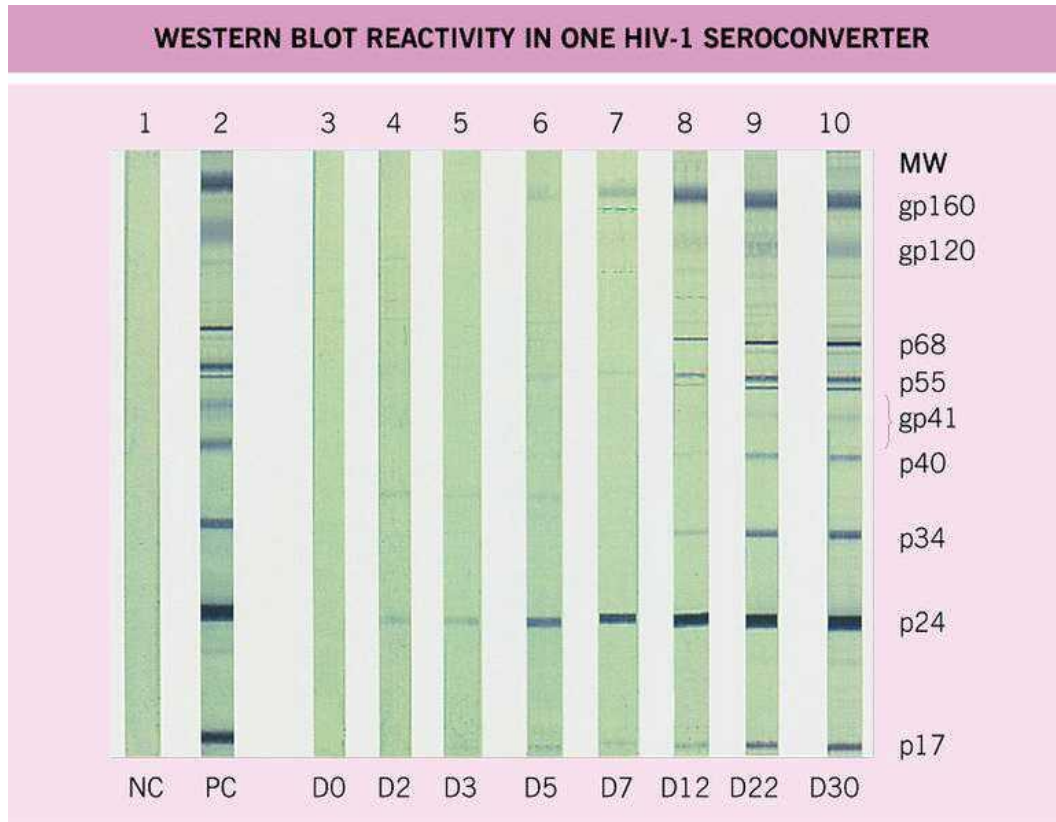
Window period 2 weeks

HIV structure



Source: <http://www.yale.edu/bio243/HIV/hivstructure.html>

Western Blot



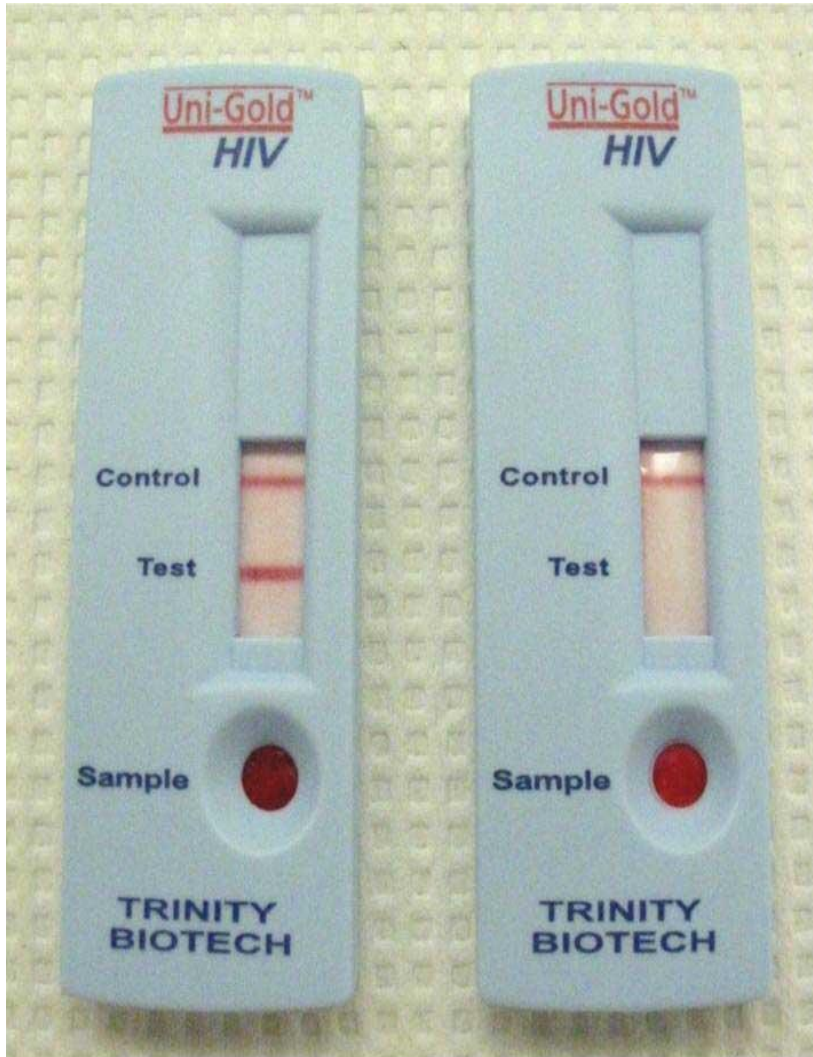
Western Blot interpretation

Negative: no bands

Positive: reactivity to
gp120/160 + either gp41
or p24

Indeterminate: any other
band pattern

Rapid testing



One drop of blood
Four drops of wash solution
Wait 10 minutes

Rapid tests available in Auckland

Test	Used by	Detects	Duration	Sensitivity	Specificity
Insti	Body Positive	HIV1/(2)	1 min	99.8	99.5
Alere	Body Positive	HIV1/2 (p24 Ag/Ab)	20 mins	100	99.66 (Ag) 99.23 (Ab)
Uni-Gold	NZ AIDS Foundation	HIV1	10 mins	100	99.7
SD Bio-line	NZ AIDS Foundation	HIV1/2 (p24Ag/Ab)	20 mins	100	99.91