Epidemiology and TTD risks in SA and principles of managing these

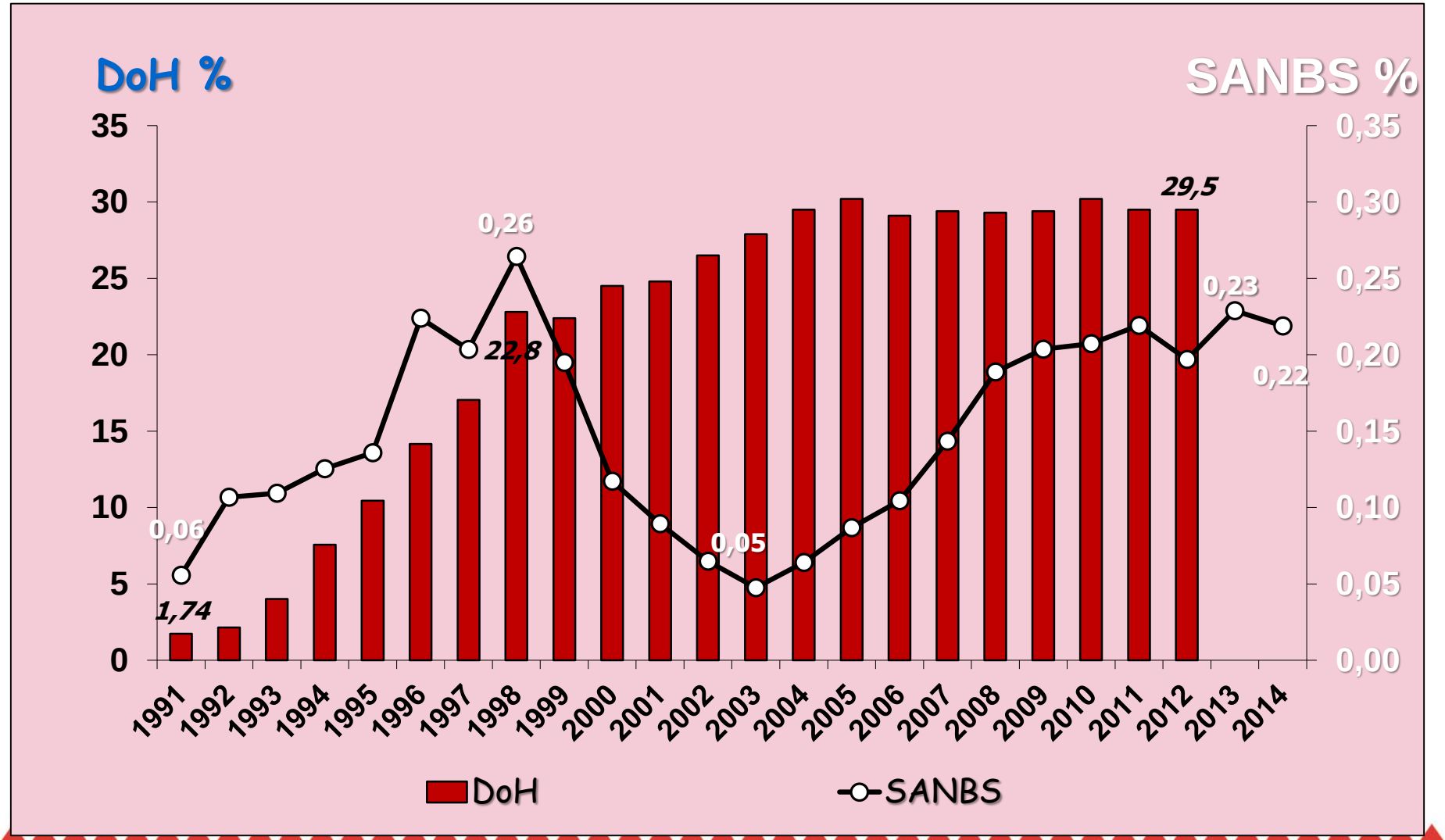
Marion Vermeulen

Outline of presentation

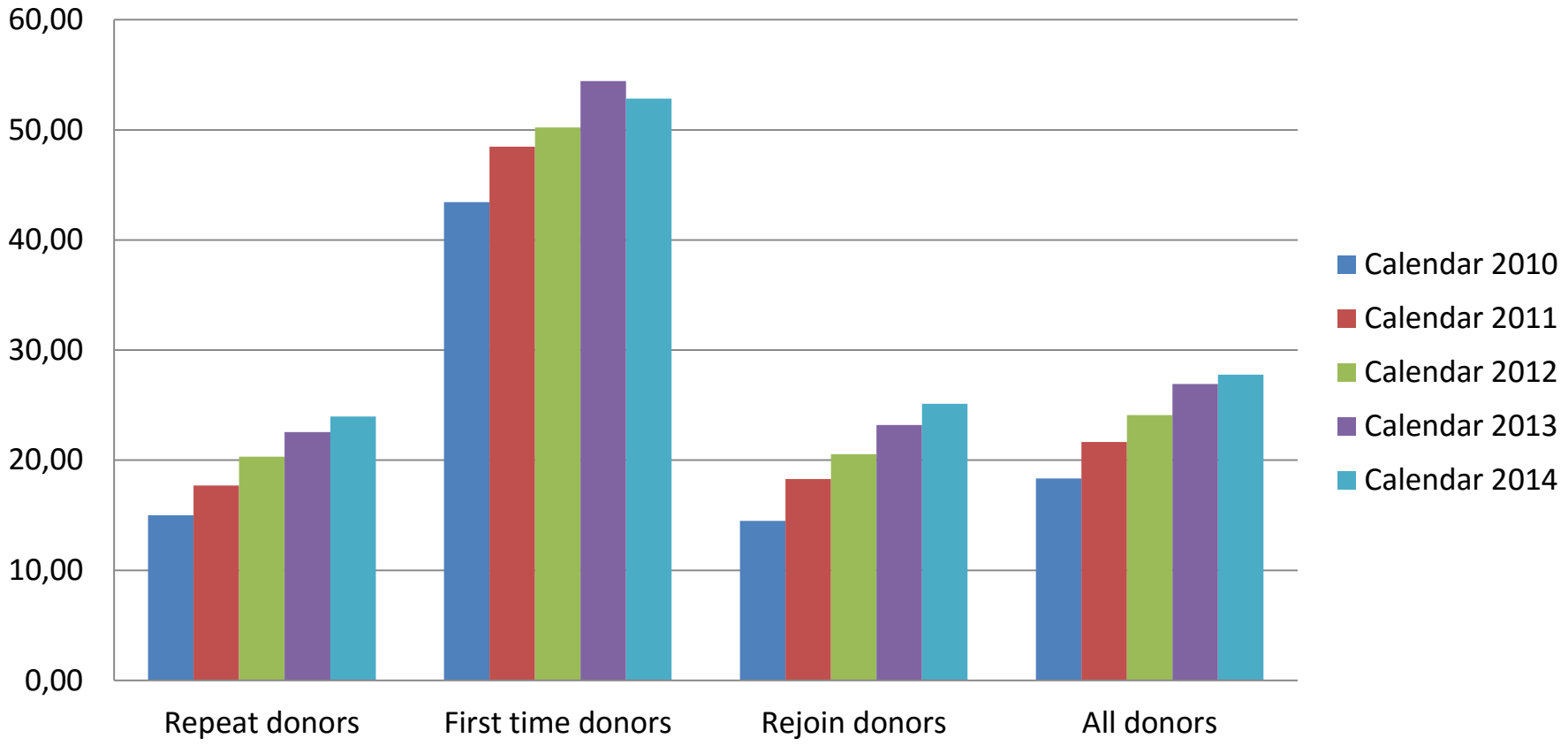
- Background of South African epidemiology
- Data analysis of 2010 to 2014
  - HIV positives by cohorts
  - HIV residual risk
- Management of Risks

Epidemiology

Background to NAT Implementation & Risk Model



Increase in proportion of donations from Black donors

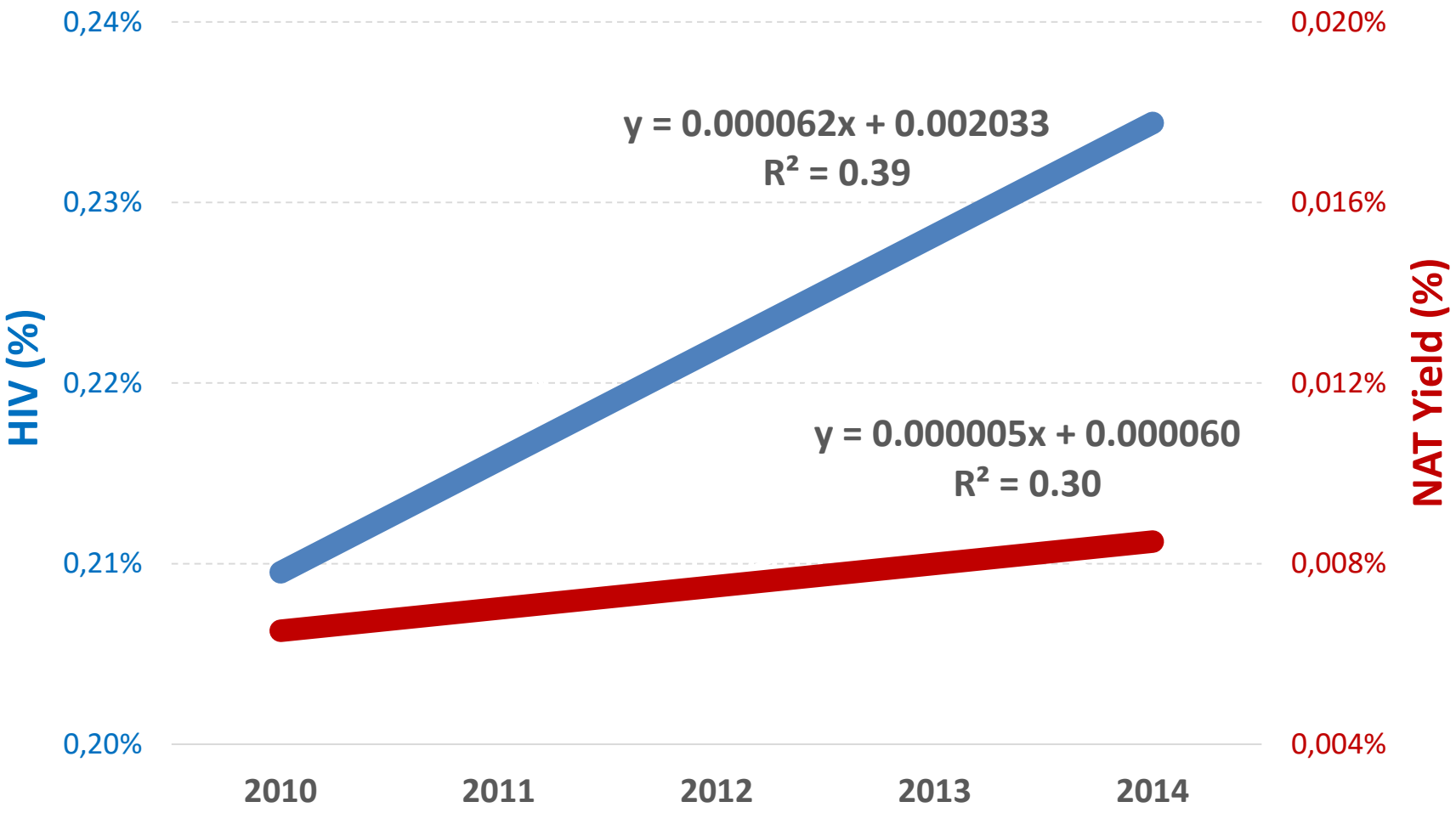


Summary of NAT yields

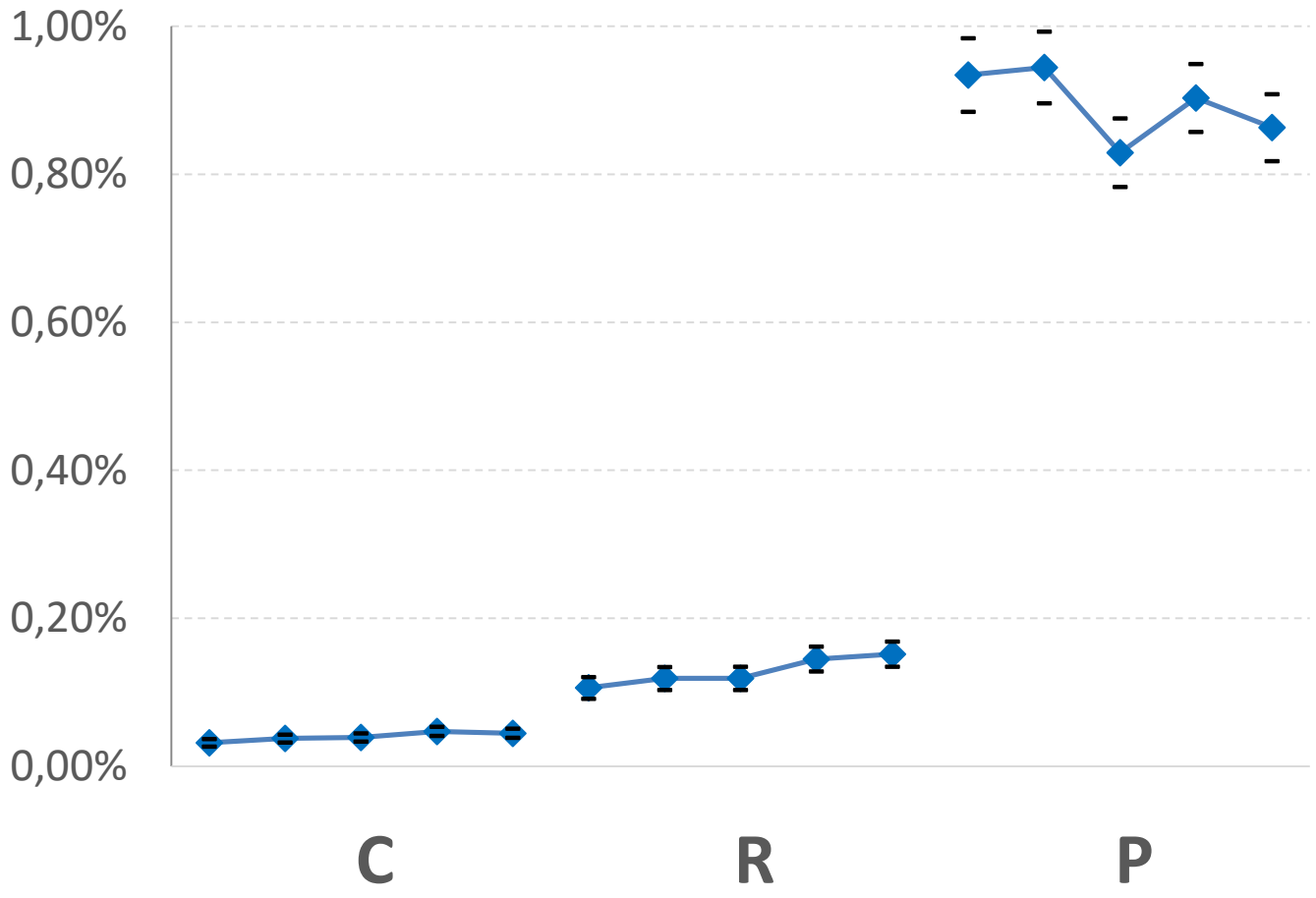
- NAT has interdicted an additional
  - 164 HIV positives in 2005 - 2009
  - 309 HIV positives in 2010 – 2014

Data analysis for HIV 2010 - 2014

HIV: Positive vs NAT YIELD rate



HIV (%) per Risk Category - 2010 - 2014 (95% CI)



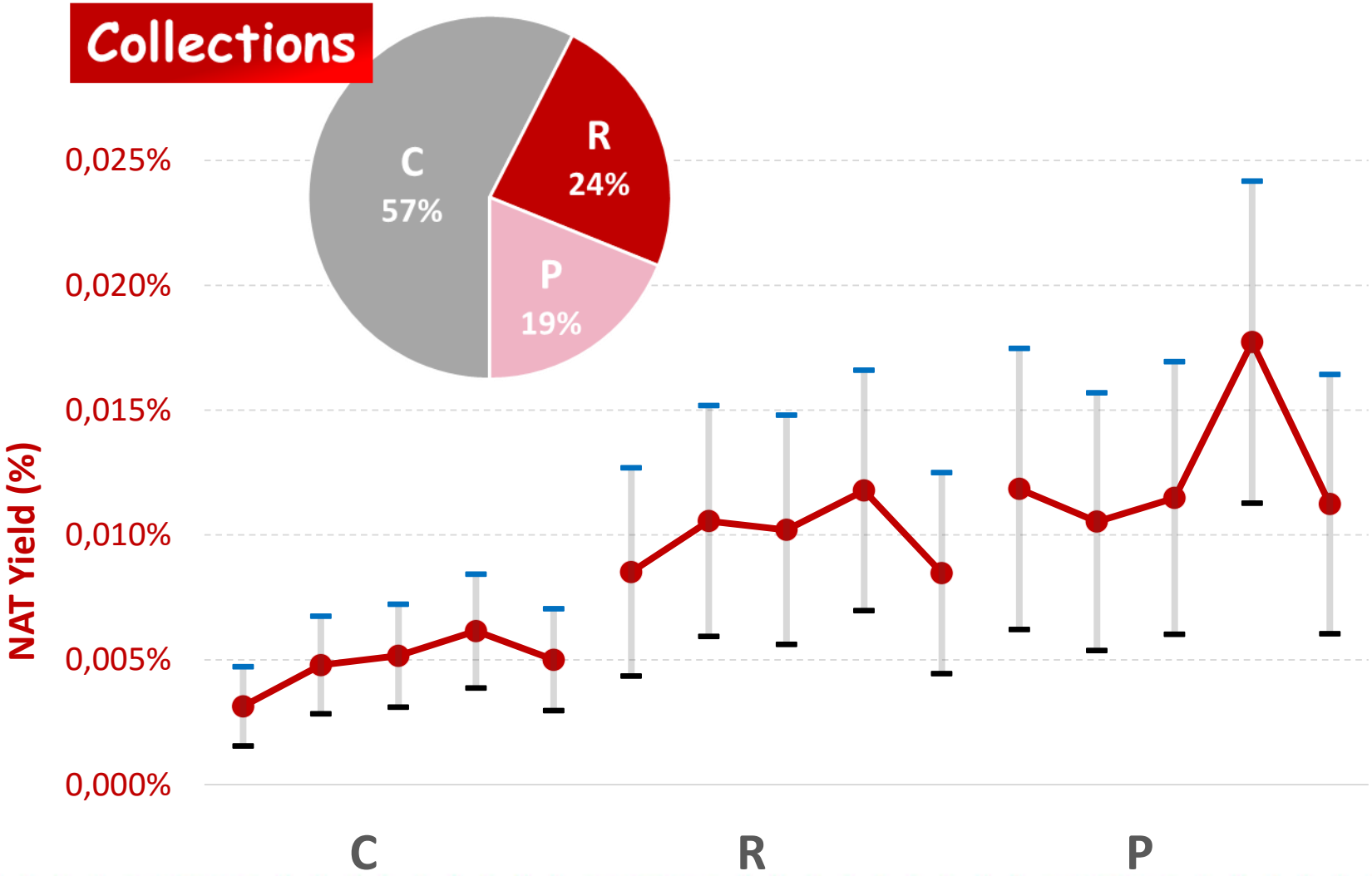
C= Donates >3 donations in a 2 year period and made into all components

R= Donates 2-3 donations in a 2 year period and made into RBC and FFP

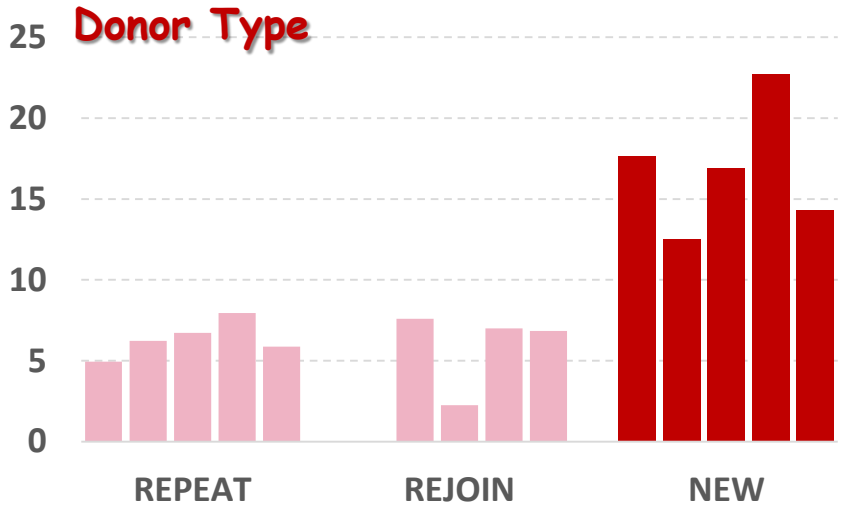
P= First time & Lapsed (reactivated) donors only used for FFP

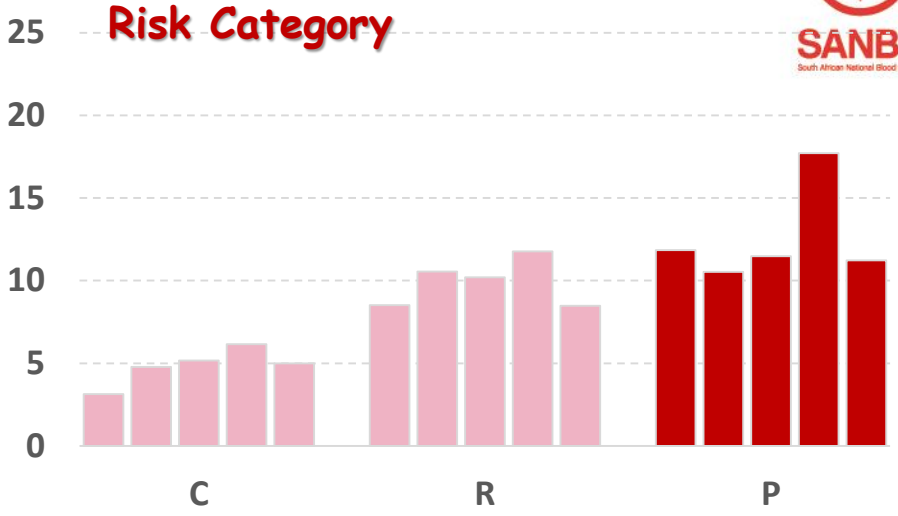
HIV NAT Yield rate (95% CI)

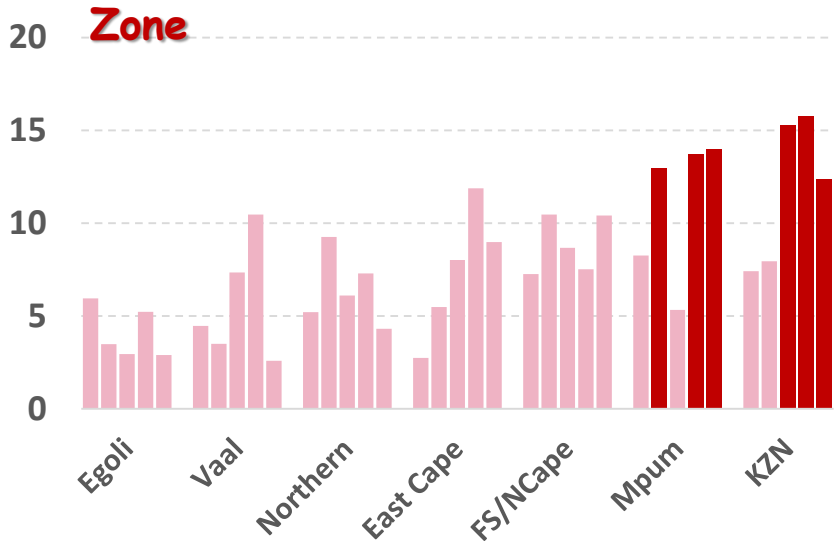
SANBS
South African National Blood Service

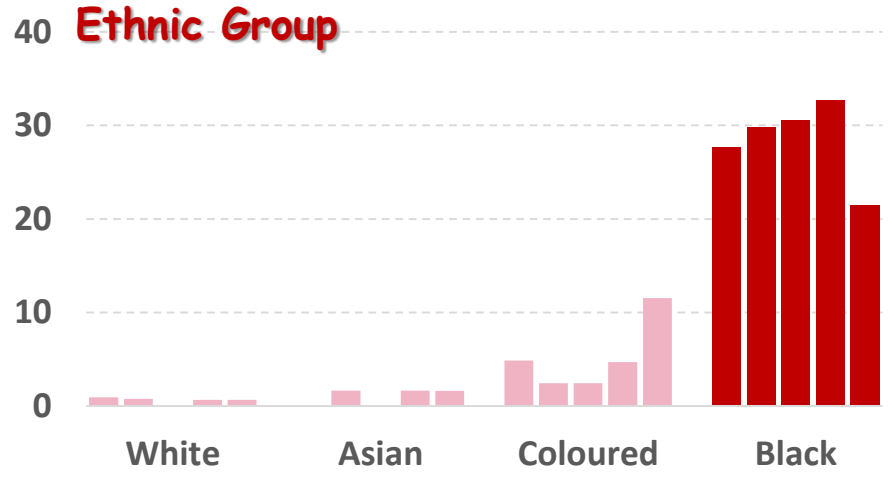


Risk Factors – NAT Yield / 100 000

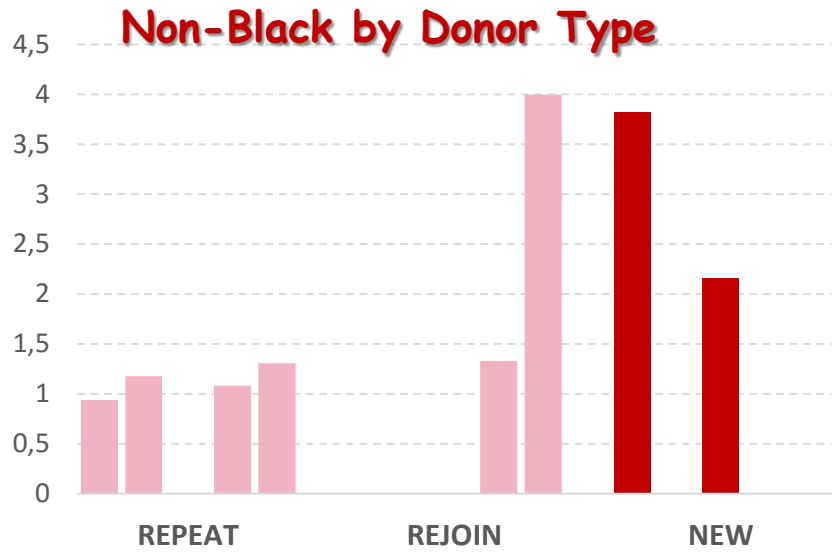


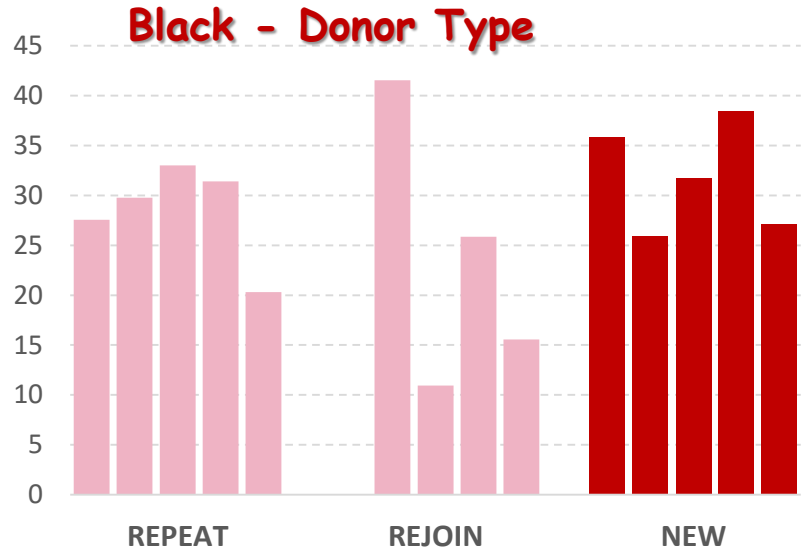






Risk Factors - NAT Yield / 100 000





Estimated HIV transfusion risk

Busch Model (confirmed NAT Yields)

Weusten Model (sero-conversions in Repeat donors)

HIV Residual Risk per Risk Category : Busch – *(confirmed NAT yields)*

Calendar Year	Residual Risk expressed as 1 in x			
	Overall	C	R	P
2010	52 817	99 841	36 765	26 432
2011	43 604	65 392	29 650	29 724
2012	41 703	60 663	30 671	27 266
2013	31 864	50 917	26 574	17 662
2014	44 298	62 593	36 949	27 863
2014 95% CI	*(81 333 : 30438)*	*(226 039 : 36 326)*	*(232 473 : 20 069)*	*(152 561 : 15 332)*

HIV Residual Risk : Weusten
(sero-conversions in Repeat Donors)

# virions (50% infection rate) LOD's X_{50} = 2.7 X_{95} = 18.4	1	316
Calendar Year	**Residual Risk expressed as 1 in x**	
2010	70 549	2 324 045
2011	58 421	1 924 528
2012	56 571	1 863 599
2013	50 396	1 660 171
2014	**56 037**	**1 845 987**

Strategies to mitigate risk

- Prescreening using the donor Questionnaire & 1:1 interview
- Individual donation nucleic acid amplification testing
- Blood safety meeting annually to analyse risk demographics and estimate residual risk in cohorts
- Pathogen reduction for pooled platelets
- Quarantine system for plasma
- Research projects to determine risk behaviours for acute infections

Acknowledgements

Ronel Swanevelder

SANBS
South African National Blood Service

THANK YOU