

Why the TB incidence rate is not falling in NZ?

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Aims

1. To describe Epidemiology of TB in NZ (1995-2004)
 - Identify trend of TB incidence
 - Identify populations most affected
2. To assess factors contributing to TB incidence
 - Migration
 - HIV/AIDS
 - MDR-TB
3. To identify improvements to TB prevention & control



Methods

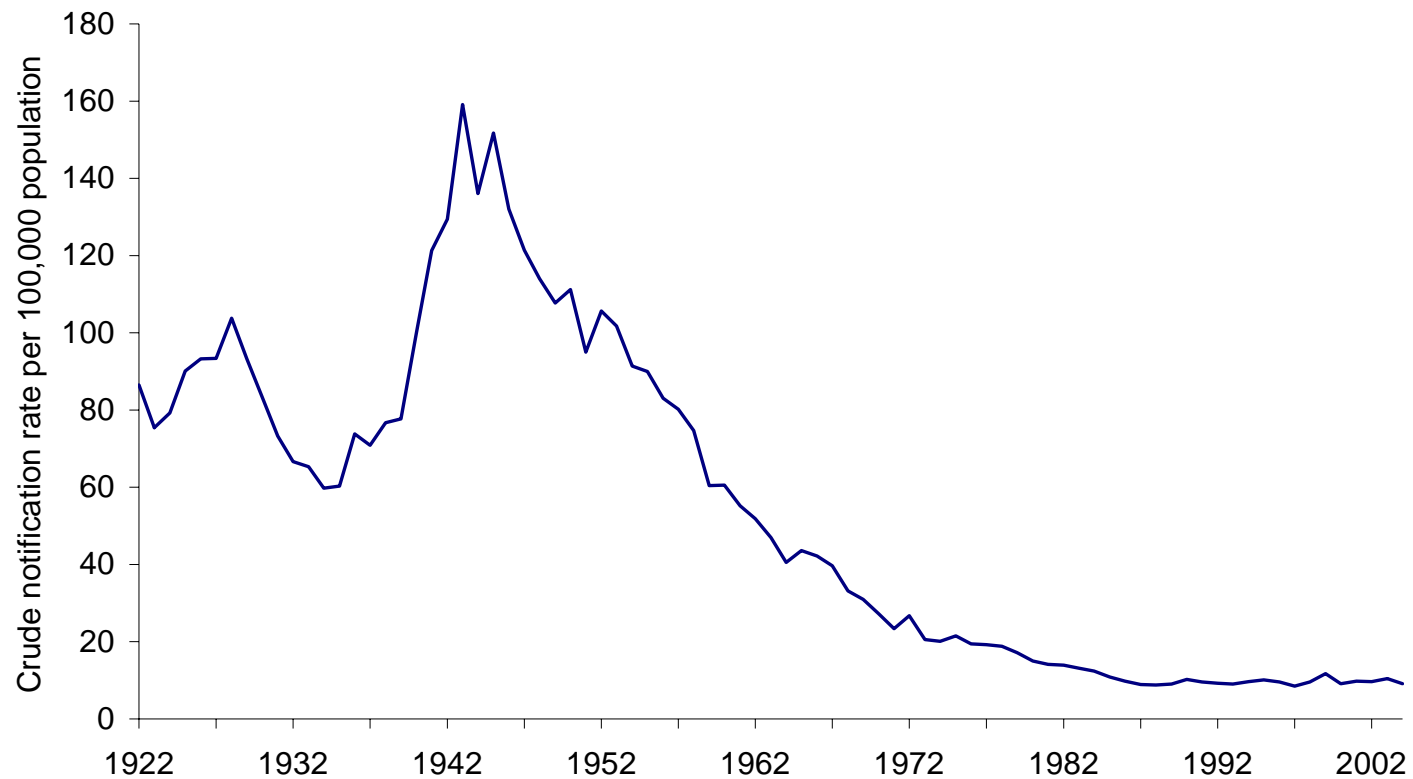
- Source of data and information
 - TB surveillance data (1995-2004) - ESR
 - Census data (1996 & 2001) - Statistics NZ
 - AIDS surveillance data - AIDS Epidemiology Group
 - Other reports on TB incidence



Methods (contd.)

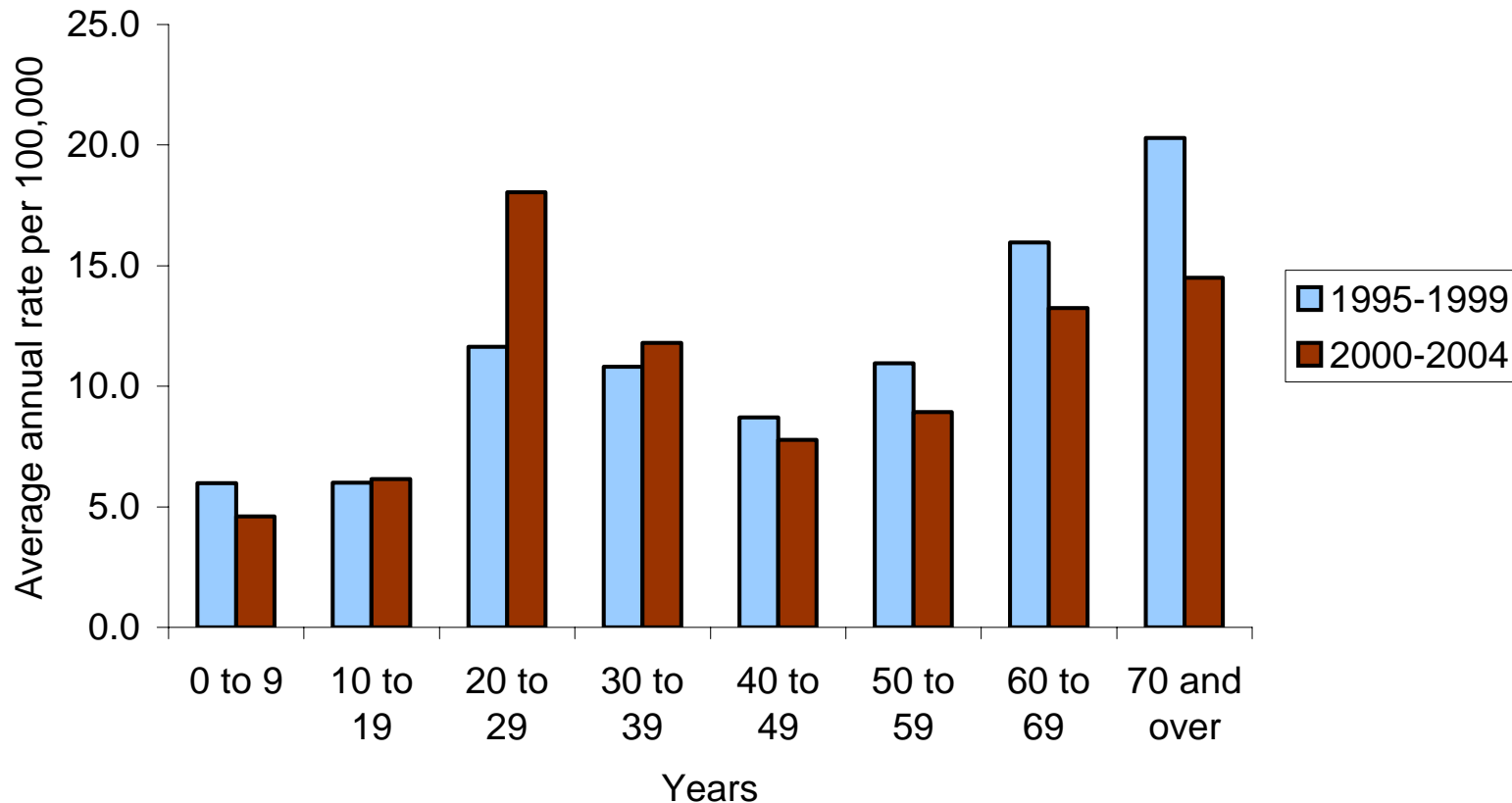
- Descriptive epidemiology:
 - Incidence rate by age, ethnicity, birth place (1995-99 and 2000-04)
 - Interval between migration and onset of disease
- Analysis of additional surveillance data:
 - HIV co-infection (using AIDS surveillance data)
 - Outbreak surveillance data
- Appraisal of multi-drug resistance reports

TB incidence, 1922-2004

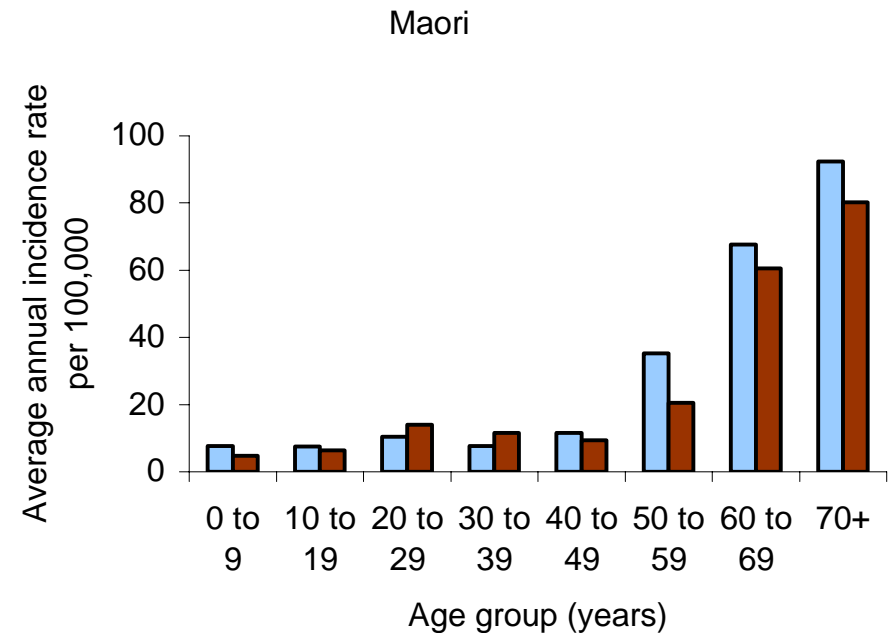
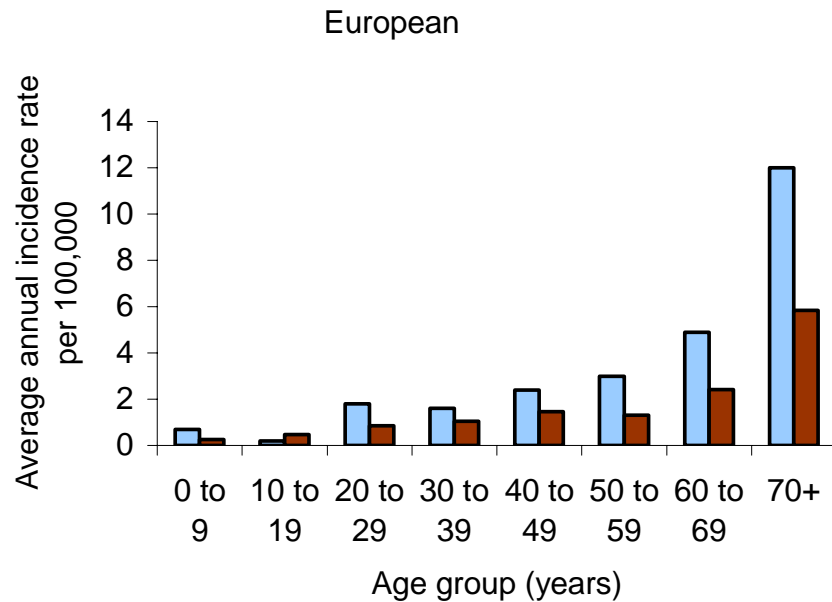


Tuberculosis notification rate (crude rate per 100 000) in New Zealand, 1922 – 2004.

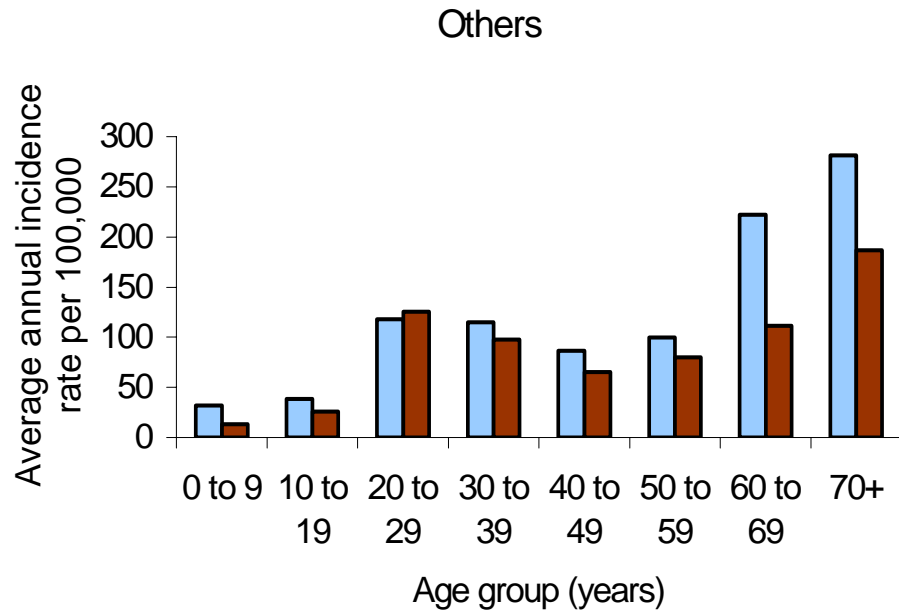
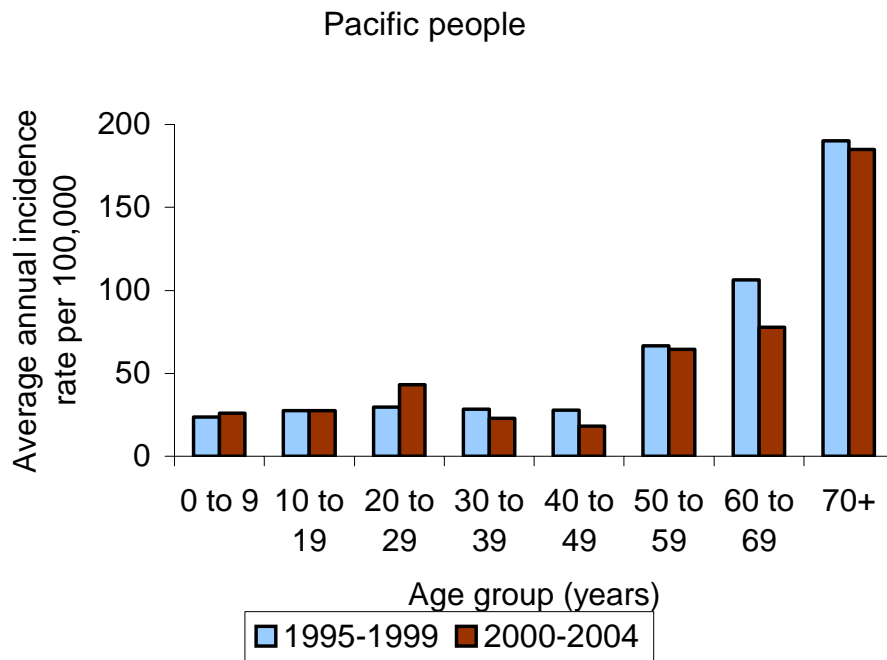
Incidence rate by age group



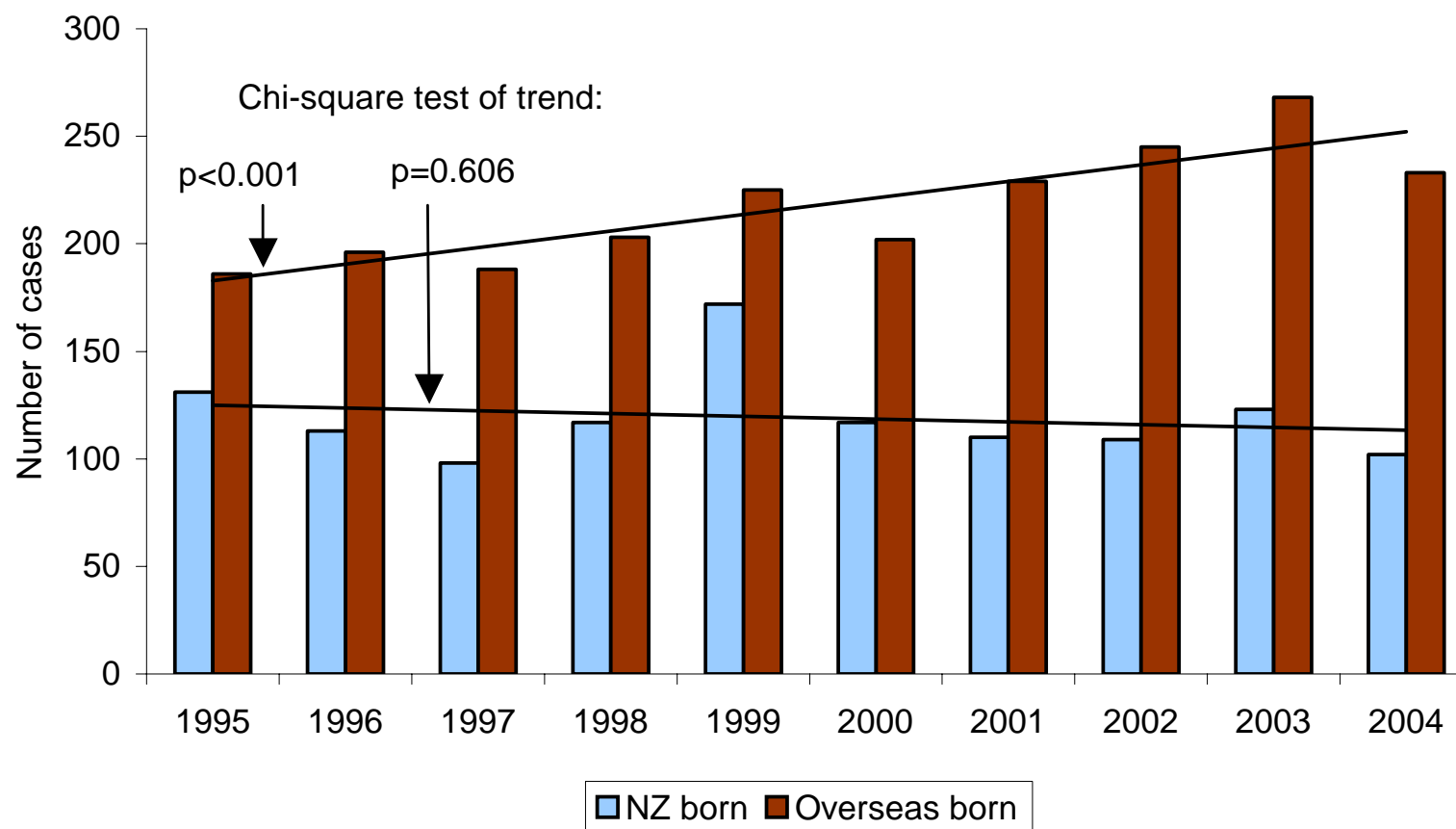
Incidence rate by ethnicity and age group



Incidence rate by ethnicity and age group

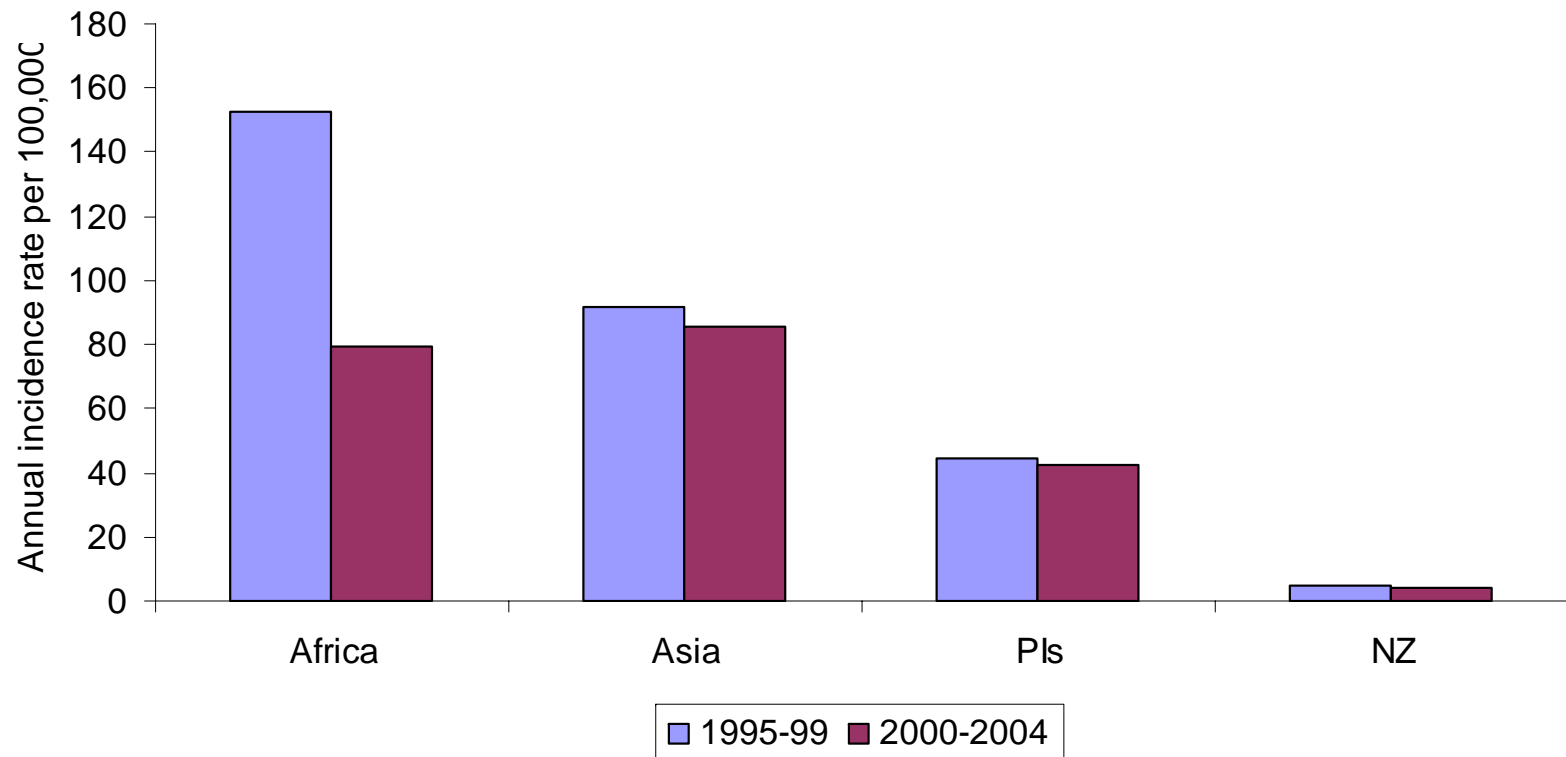


Trend in incident cases by place of birth

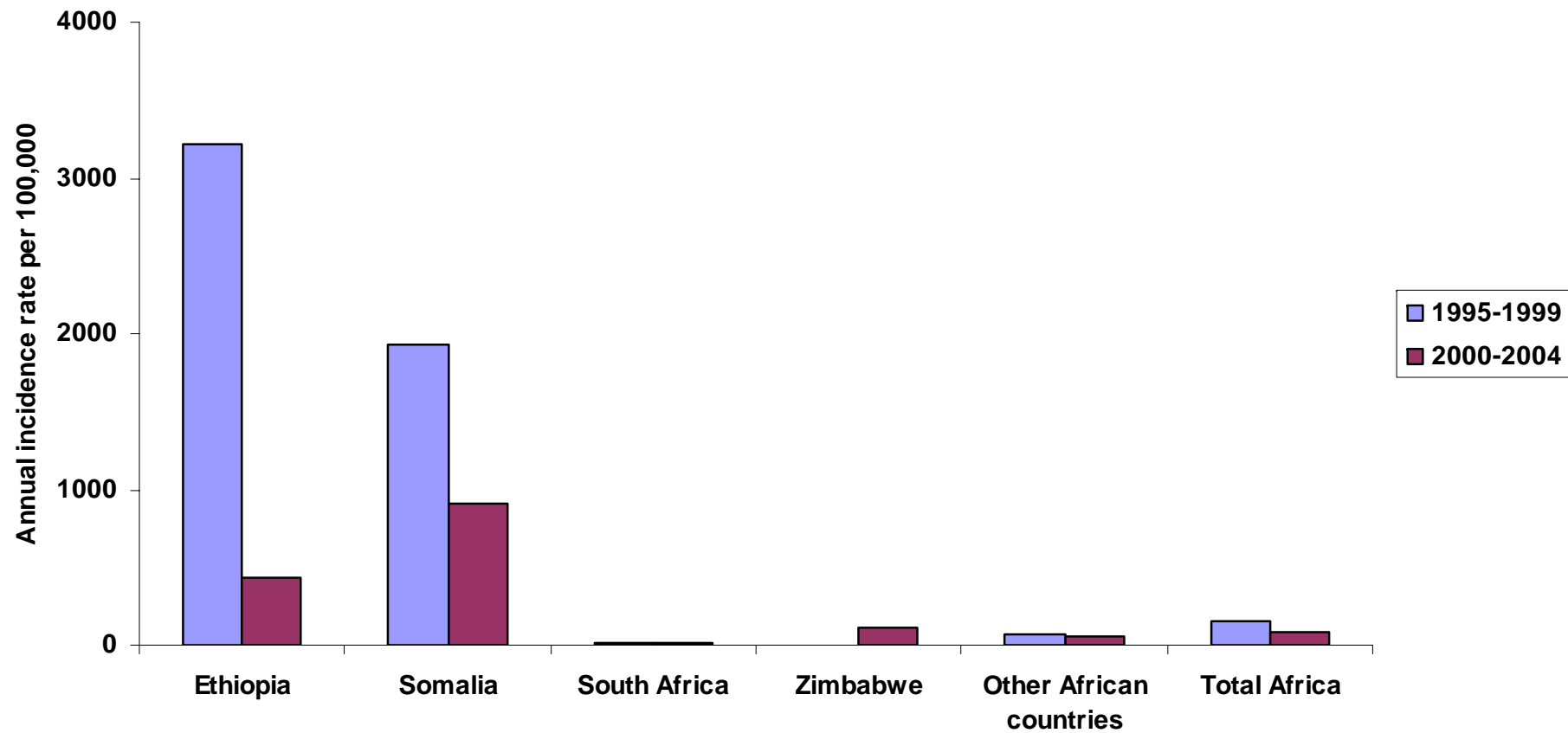




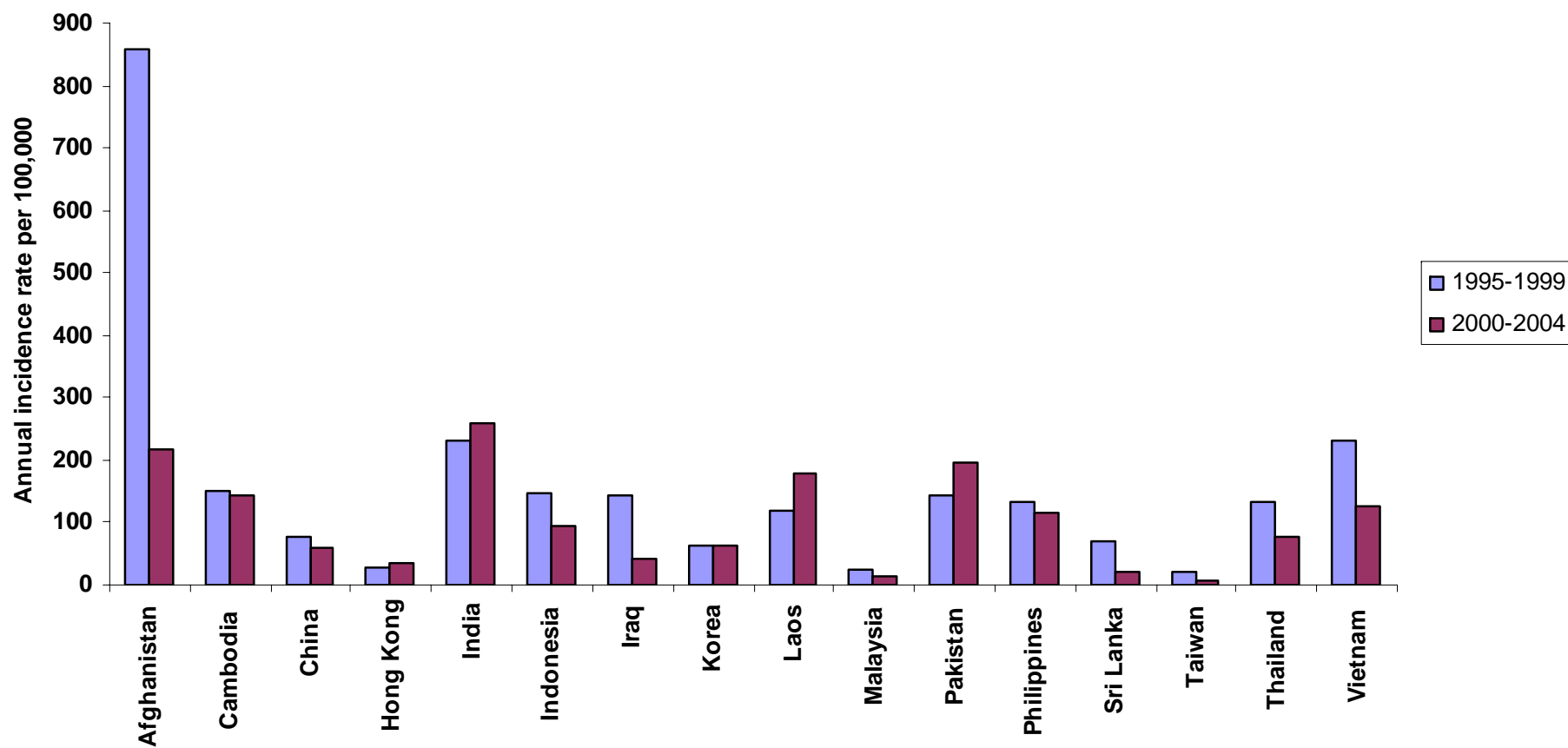
Incidence by region of birth



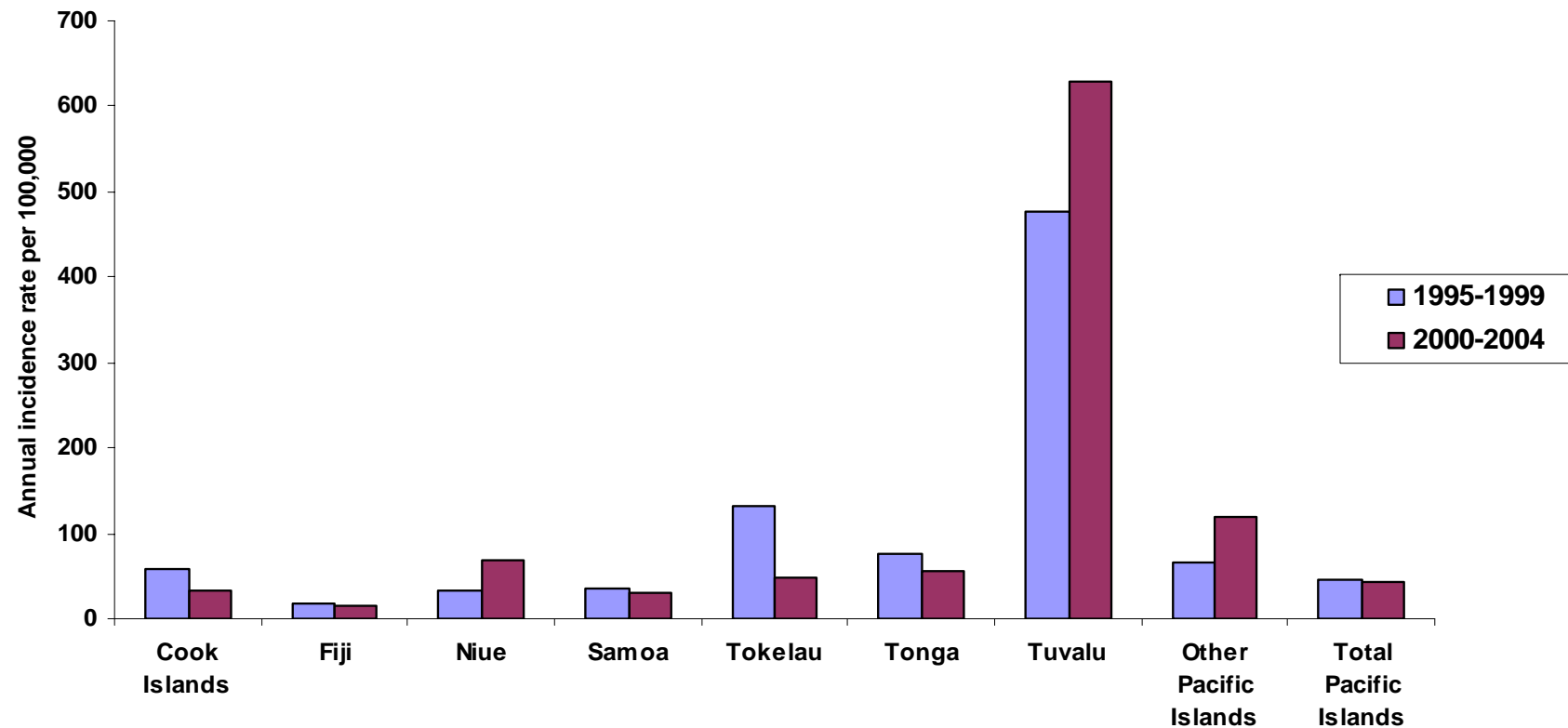
Incidence by country of birth: Africa



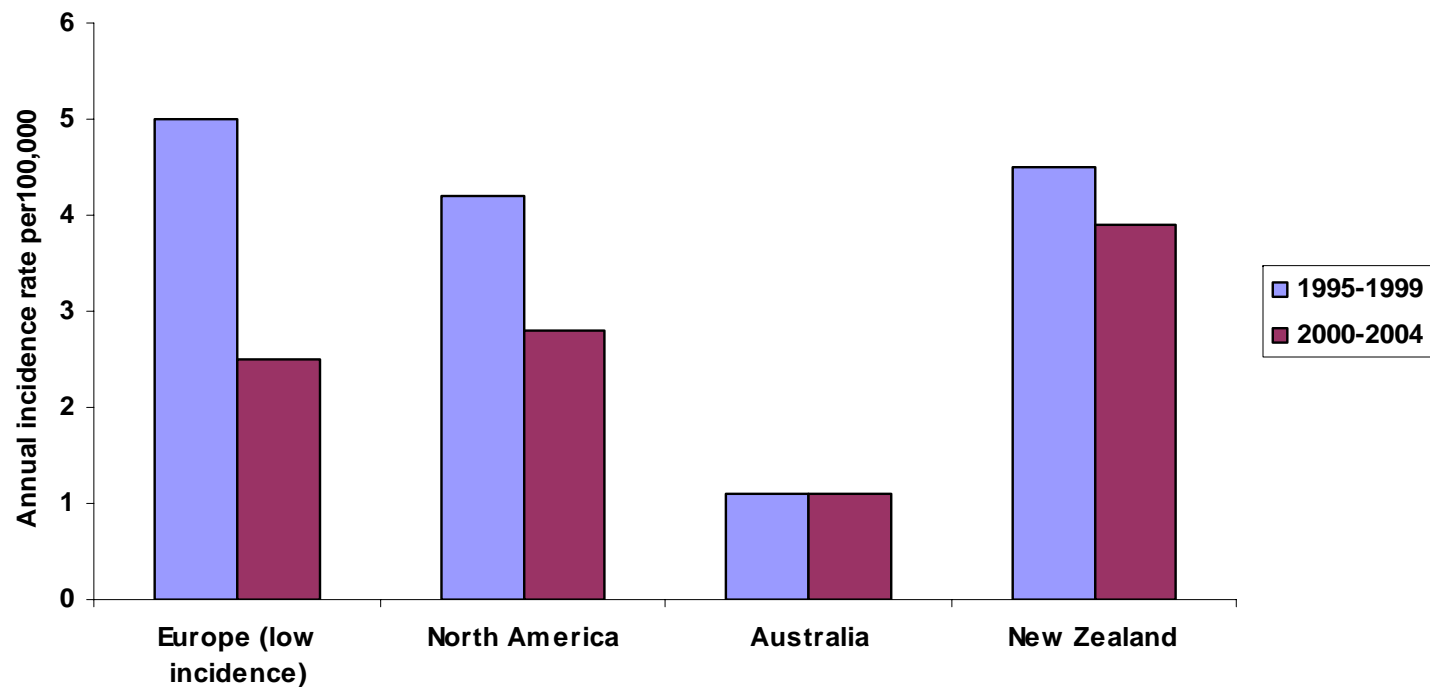
Incidence by country of birth: Asia



Incidence by country of birth: Pacific Islands

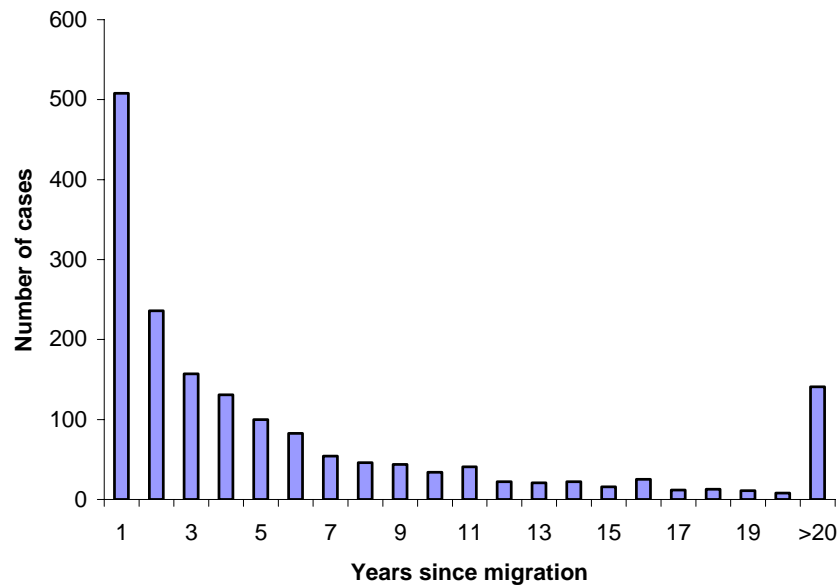


Incidence by country of birth: Low TB incidence countries

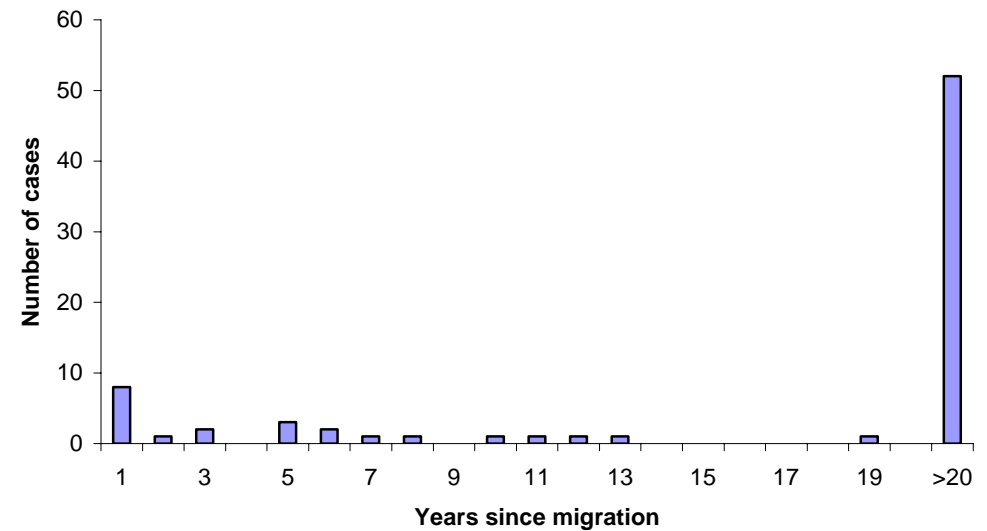


Interval between migration and notification of TB

Cases born in high-incidence countries



Cases born in Low-incidence countries





TB Outbreaks

- 24 outbreaks (Jun 1996 – Dec 2004)
241 cases (including LTBI)
- Pacific people 47%, Maori 41% (in non-outbreak situations 16% and 15%)
- 6.8% of total cases were part of outbreaks

TB in NZ- and Overseas-born by ethnicity and age group

Ethnicity	Age group	NZ-born		Overseas-born	
		95-99	00-04	95-99	00-04
European	<40	0.76	0.48	2.35	1.43
	=>40	3.83	1.95	5.25	3.44
Maori	<40	7.03	7.69	9.23	0.00
	=>40	28.94	21.90	43.72	30.17
Pacific	<40	18.59	23.84	36.44	39.92
	=>40	14.09	9.16	68.94	59.77
Other	<40	9.73	8.55	93.98	86.57
	=>40	30.72	12.19	122.54	89.87

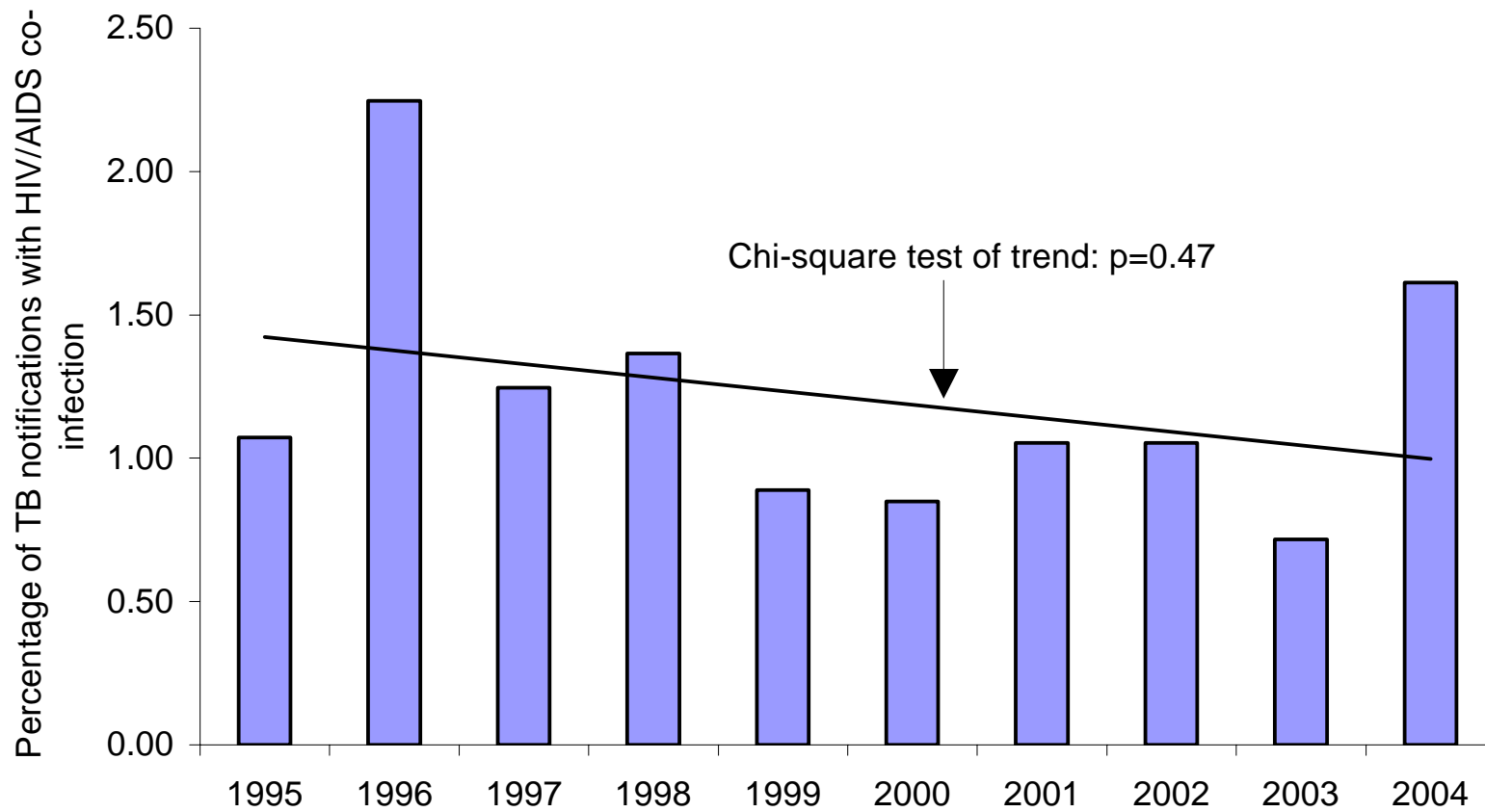
Incidence rate per 100,000



MDR-TB

- MDR-TB rare in NZ - 19 cases in 10 years
- All cases born overseas
- Only 1 case (also overseas-born) developed MDR during treatment in NZ
- No documented evidence of MDR-TB transmission within NZ

HIV/AIDS and TB





Conclusions:

- Overall TB incidence is static in NZ
- Main source of disease is migration of TB-infected people from high incidence countries
 - Risk highly variable for different countries
 - Development of disease highest within a year of migration
 - No evidence migrants spreading TB to NZ-born people



Conclusions (cont.):

- TB incidence rates in most NZ-born people are static or declining
 - E.g. NZ born European <40, rate <0.5 / 100 000
- Other contributors to global TB emergence not important in NZ (yet)
 - HIV/AIDS
 - TB drug resistance



Implications for TB control

- Stricter immigration health screening
- Organised system of screening of family reunification refugees
- Awareness of TB for clinicians who are looking after immigrants and refugees
- Increased aid and development assistance to control the disease globally and regionally



Acknowledgement

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- Health Research Council of NZ
- NZ Population Health Charitable Trust
- Institute of Environmental Science & Research Limited (ESR)
- Statistics NZ
- AIDS Epidemiology Group



Publications

This work has been published as two papers in NZMJ on 13 October 2006:

- Tuberculosis epidemiology in New Zealand: 1995–2004 by *Dilip Das, Michael Baker, Lester Calder*
- Why the tuberculosis incidence rate is not falling in New Zealand by *Dilip Das, Michael Baker, Kamalesh Venugopal, Susan McAllister*

www.nzma.org.nz/journal/