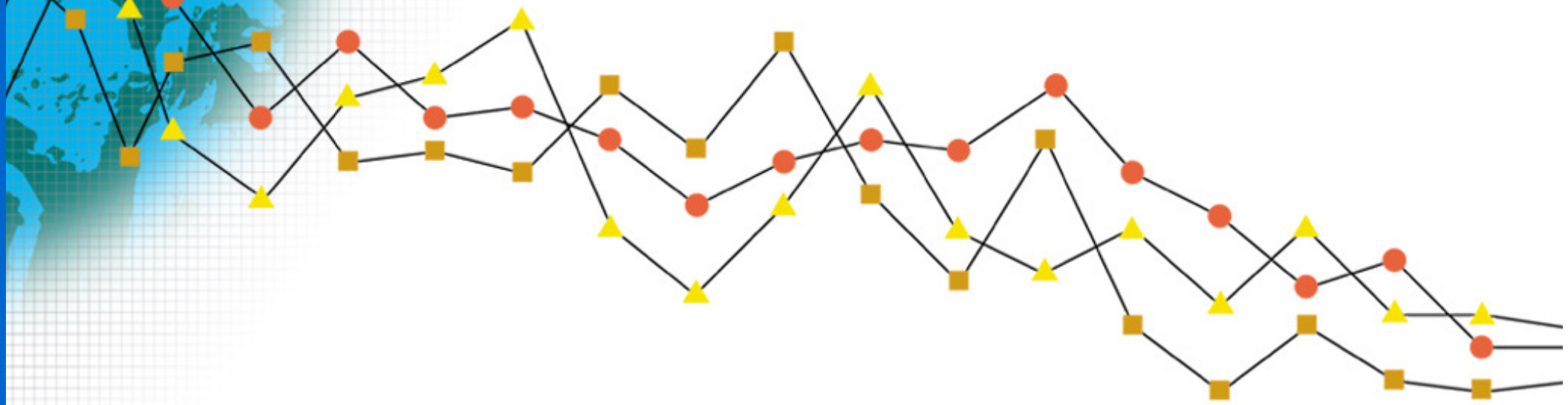
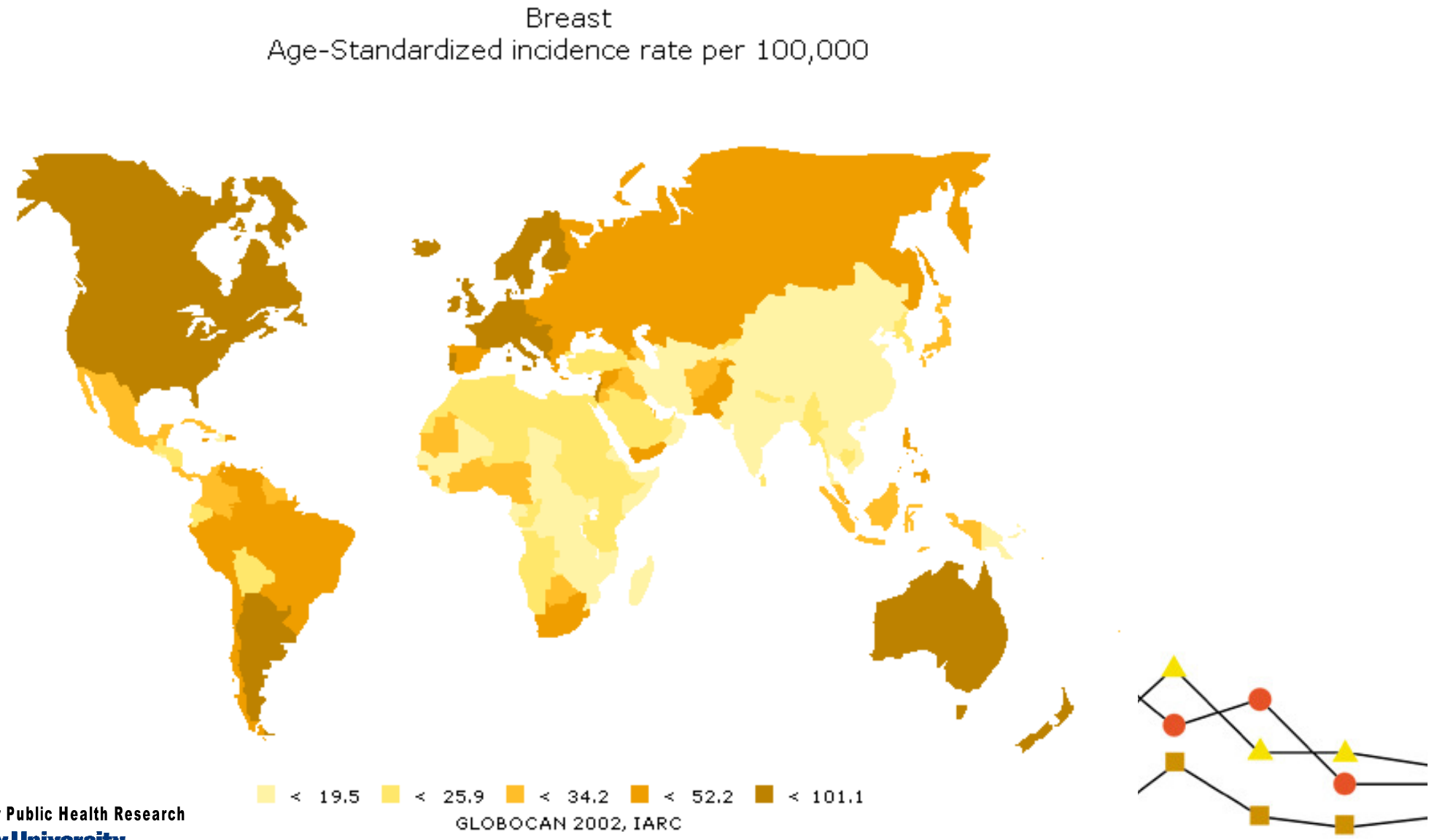
Prognostic factors in women with breast cancer: inequalities by ethnicity and socioeconomic position in New Zealand



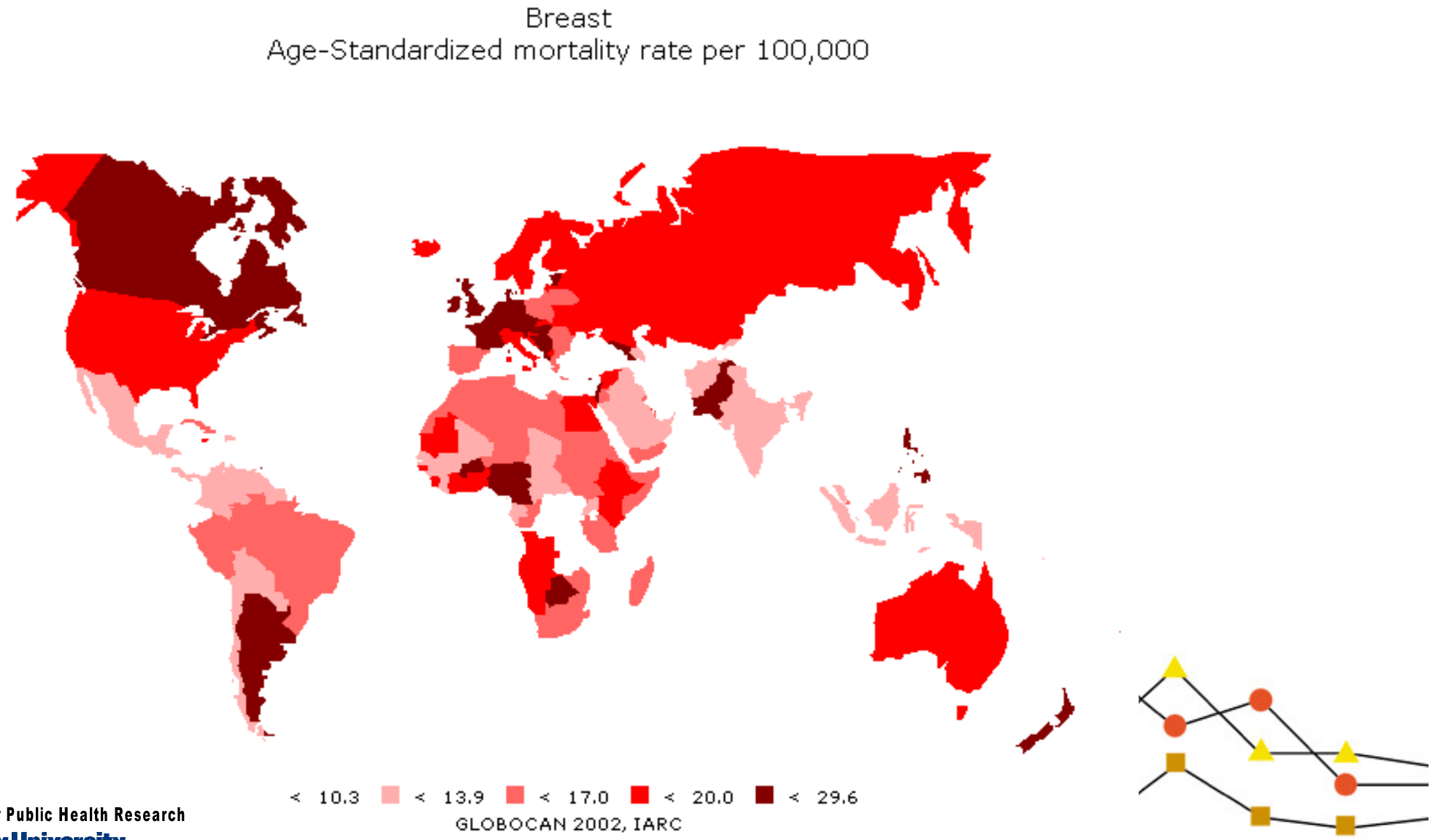
Centre for Public Health Research
Massey University
Te Kunenga ki Purehuroa

Fiona McKenzie, Mona Jeffreys,
Andrea 't Mannetje, Neil Pearce

Breast cancer incidence - worldwide



Breast cancer mortality - worldwide



Incidence by ethnicity - NZ

Age-standardised annual cancer incidence per 100,000 in New Zealand by ethnic group, averaged for 1996 to 2000

Site (ICD9)	Pacific		Māori		Non-Māori, non-Pacific	
	n	Rate (95% CI)	n	Rate (95% CI)	n	Rate (95% CI)
Breast (174)						
Female	255	81.8 (71.6 to 93.3)	792	93.6 (86.9 to 100.9)	9,449	92.8 (90.8 to 94.7)

From: Foliaki et al, Pacific Health Dialog 2004; 11:94-100.

Incidence & mortality by ethnicity - NZ

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Female	255	**81.8** (71.6 to 93.3)	792	**93.6** (86.9 to 100.9)	9,449	**92.8** (90.8 to 94.7)

Age-standardised annual cancer mortality per 100,000 in New Zealand by ethnic group, averaged for 1996 to 2000

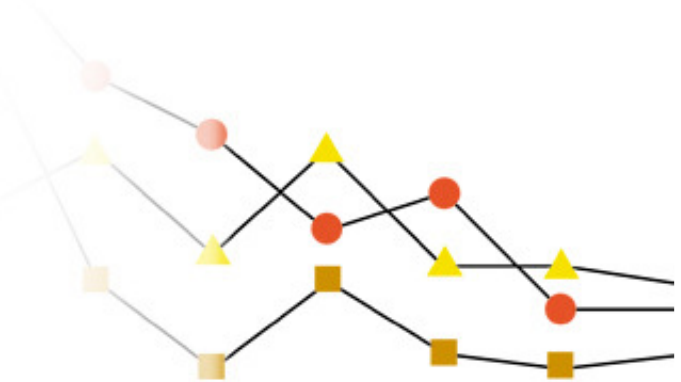
Site (ICD9)	Pacific		Māori		Non-Māori, non-Pacific	
	n	Rate (95% CI)	n	Rate (95% CI)	n	Rate (95% CI)
Breast (174)						
Female	117	**36.8** (30.1 to 44.9)	291	**36.2** (31.9 to 41.0)	2,782	**24.5** (23.5 to 25.4)

From: Foliaki et al, Pacific Health Dialog 2004; 11:94-100.

Objectives

Investigate:

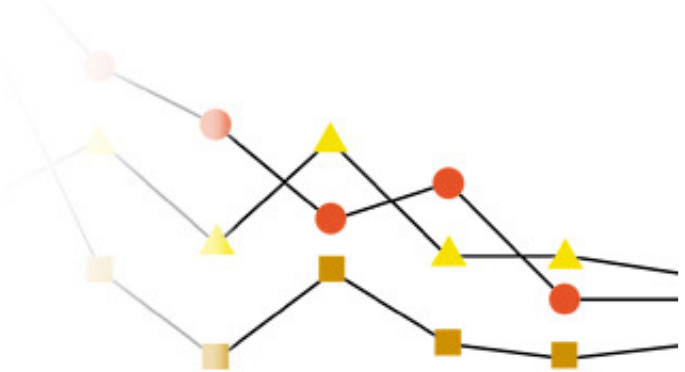
- ethnic differences in prognostic factors / tumour characteristics
- socioeconomic differences in prognostic factors / tumour characteristics



Methods

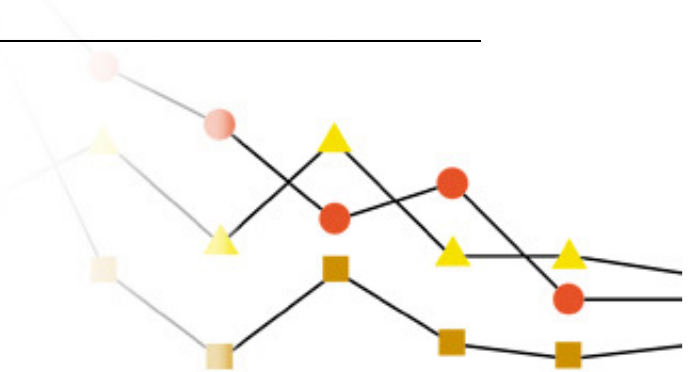
Using:

- NZ Cancer Registry notifications 1994-2004
- Prioritised ethnicity
- NZ Deprivation Index 2001 quintiles
- stage, grade, size, hormone receptors, HER-2



Study population

		Māori (n=1,674)		Pacific (n=564)		NMNP (n=19,348)		All women (n=21,586)	
		n	%	n	%	n	%	n	%
age	median	52.7		52.3		60.1			
	<40	244	14.6	94	16.7	1,213	6.3	1,551	7.2
	40-49	448	26.8	151	26.8	3,525	18.2	4,124	19.1
	50-59	465	27.8	156	27.7	4,896	25.3	5,517	25.6
	60-69	339	20.3	100	17.3	3,996	20.7	4,435	20.6
	70+	178	10.6	63	11.2	5,718	29.6	5,959	27.6
p<0.001									



Results - SEP

Stage - nonlocal compared to local stage breast cancer (n=16,546)

	OR*	95% CI	P-trend
NZDep 1-2	1.0		
NZDep 3-4	1.07	0.96 - 1.19	
NZDep 5-6	1.15	1.04 - 1.27	
NZDep 7-8	1.22	1.10 - 1.35	
NZDep 9-10	1.22	1.10 - 1.35	<0.001

Grade - moderately/poorly compared to well differentiated tumours (n=7,257)

	OR*	95% CI	P-trend
NZDep 1-2	1.0		
NZDep 3-4	1.11	0.94 - 1.33	
NZDep 5-6	1.03	0.87 - 1.21	
NZDep 7-8	1.15	0.97 - 1.36	
NZDep 9-10	1.16	0.98 - 1.39	0.086

Size - 20mm+ compared to <20mm tumours (n=11,858)

	OR*	95% CI	P-trend
NZDep 1-2	1.0		
NZDep 3-4	1.31	1.16 - 1.48	
NZDep 5-6	1.35	1.20 - 1.52	
NZDep 7-8	1.51	1.35 - 1.70	
NZDep 9-10	1.58	1.40 - 1.79	<0.001

*age adjusted

NZDep is a scale based on census information (1 represents the 10% least deprived & 10 represents the 10% most deprived areas)

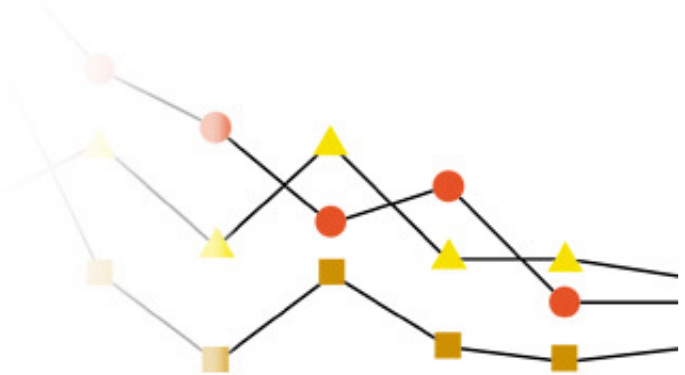
NB: The numbers of women analysed for each variable differ due to the differing amounts of missing data

Results – ethnicity (1)

Stage - nonlocal compared to local stage breast cancer (n=16,546)

	OR*	95% CI	OR**	95% CI
NMNP	1.0		1.0	
Māori	1.38	1.23 - 1.55	1.35	1.20 - 1.52
Pacific	1.75	1.43 - 2.13	1.72	1.41 - 2.11

*age adjusted, **age and NZDep adjusted



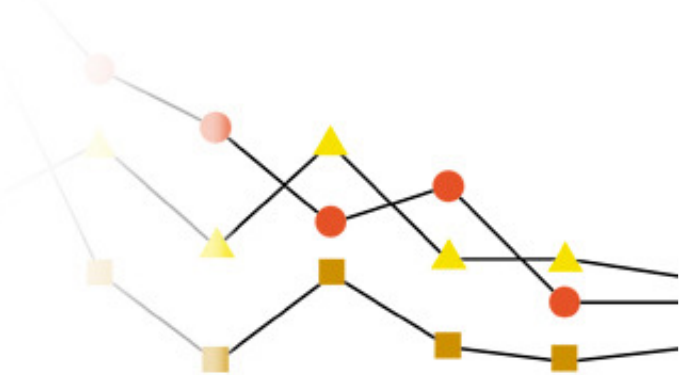
Results – ethnicity (2)

Grade - moderately/poorly compared to well differentiated tumours (n=7,257)

	OR*	95% CI	OR**	95% CI
NMNP	1.0		1.0	
Māori	1.26	1.03 - 1.55	1.26	1.02 - 1.55
Pacific	3.16	1.98 - 5.05	3.15	1.96 - 5.05

*age adjusted, **age and NZDep adjusted

NB: The numbers of women analysed for each variable differ due to the differing amounts of missing data



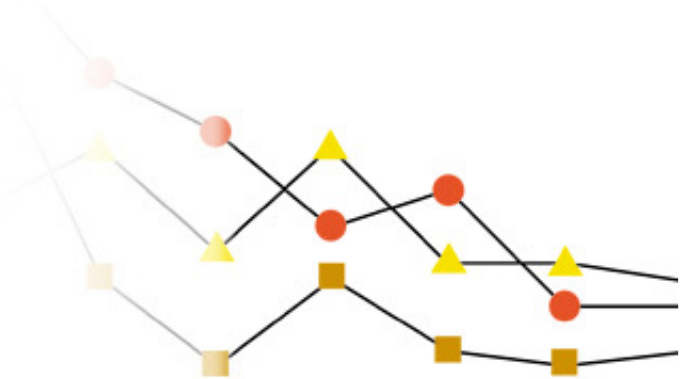
Results – ethnicity (3)

Size - 20mm+ compared to <20mm tumours (n=11,858)

	OR*	95% CI	OR**	95% CI
NMNP	1.0		1.0	
Māori	1.79	1.57 - 2.06	1.71	1.41 - 1.96
Pacific	3.05	2.34 - 3.96	2.90	2.23 - 3.79

*age adjusted, **age and NZDep adjusted

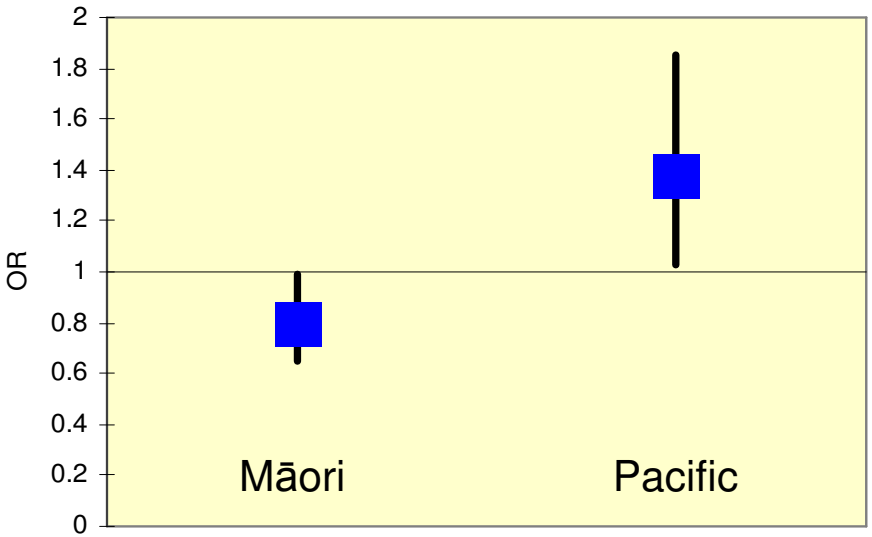
NB: The numbers of women analysed for each variable differ due to the differing amounts of missing data



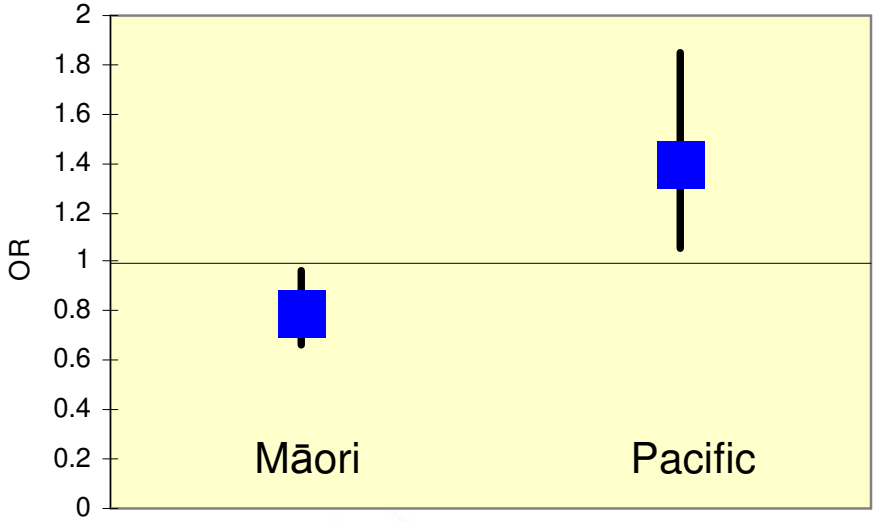
Hormone receptors

Risk of being ER/PR negative for Māori and Pacific women, compared with non-Māori/non-Pacific women

ER

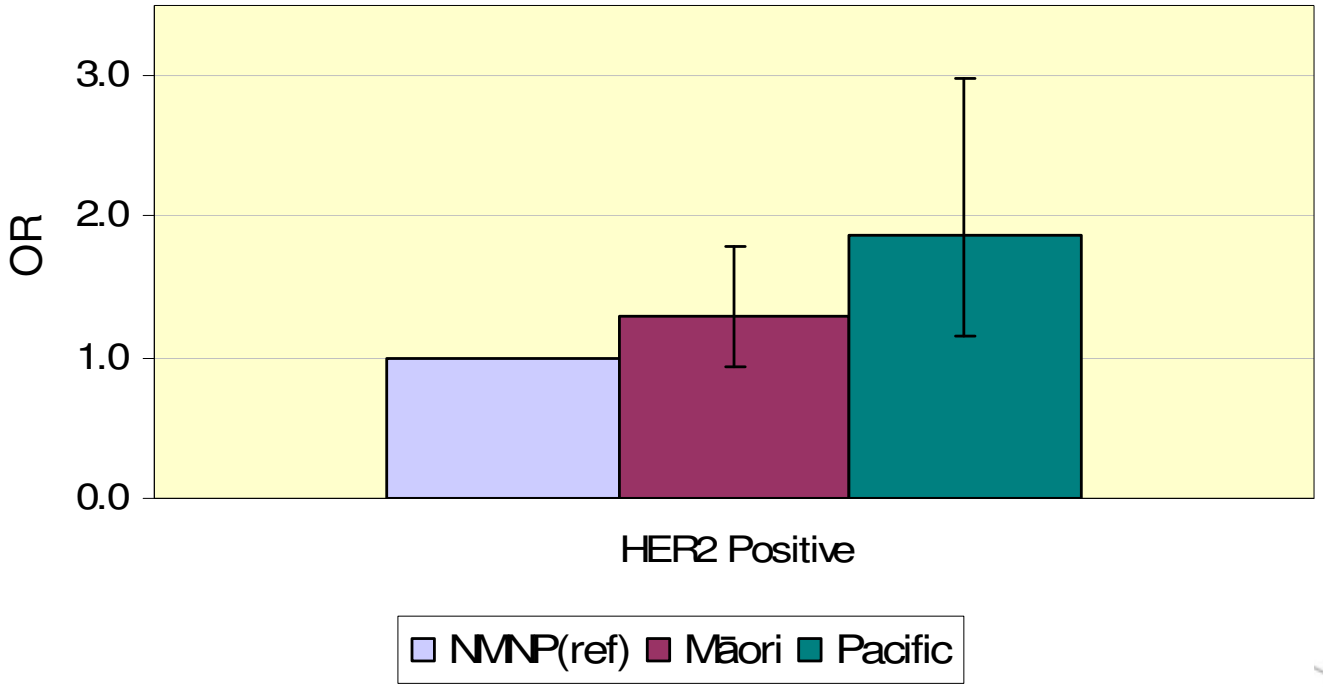


PR



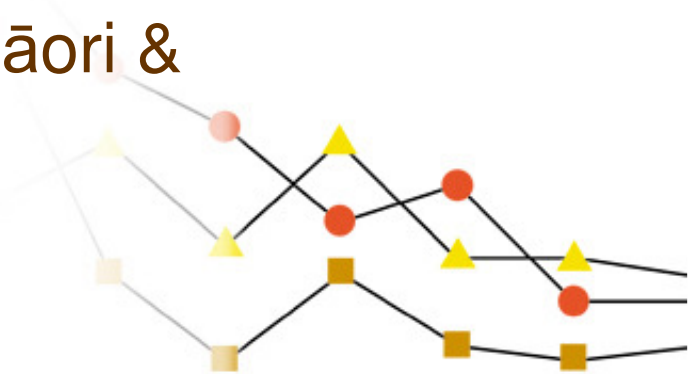
HER2 status

Risk of being HER2 positive for Māori and Pacific women, compared with non-Māori/non-Pacific women



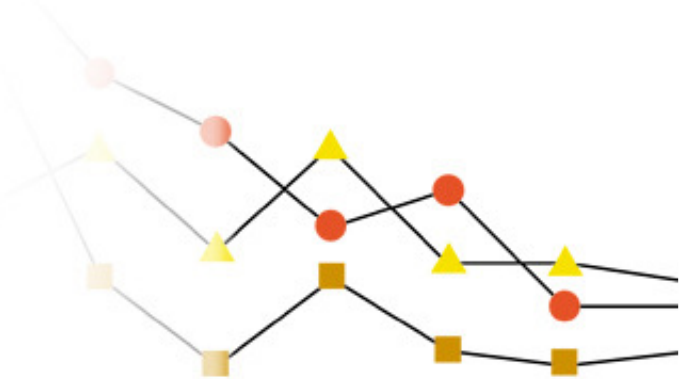
Conclusions

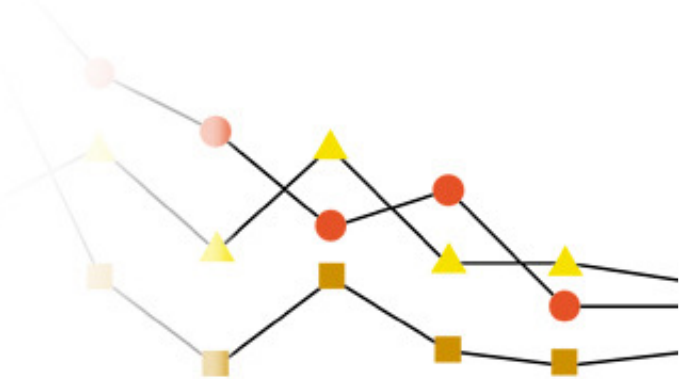
- Māori & Pacific women presented with poor prognosis breast tumours
- Ethnic differences were not explained by socioeconomic position
- Hormone receptor+ tumours more common in Māori than Pacific & NMNP
- HER2+ tumours more common in Māori & Pacific than NMNP



Limitations

- Small numbers in some categories
- Missing data in some categories



Acknowledgements

- New Zealand Cancer Registry
- Public Health Intelligence, Ministry of Health