

IMPROVING SURVIVAL IN MULTIPLE MYELOMA

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A SIMPLE QUESTION WITH NO SIMPLE ANSWER



International Staging System Stage	Median Survival
Stage I	62 months
Stage II	44 months
Stage III	29 months

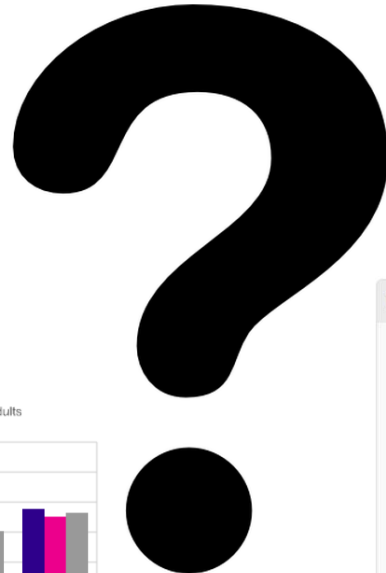
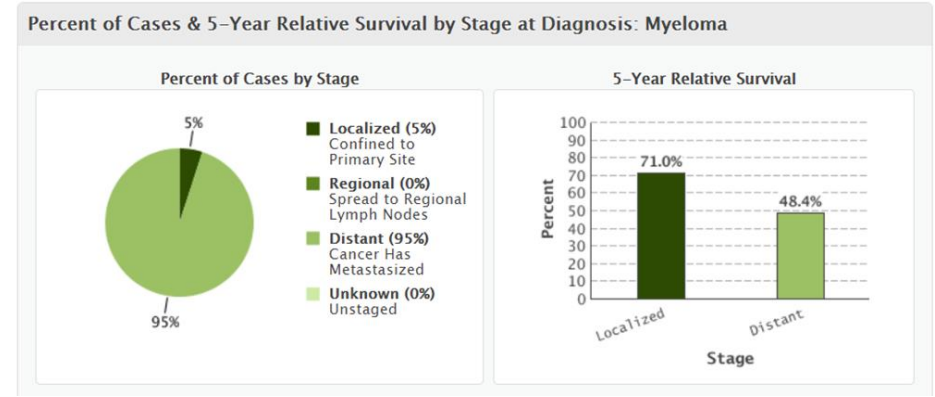
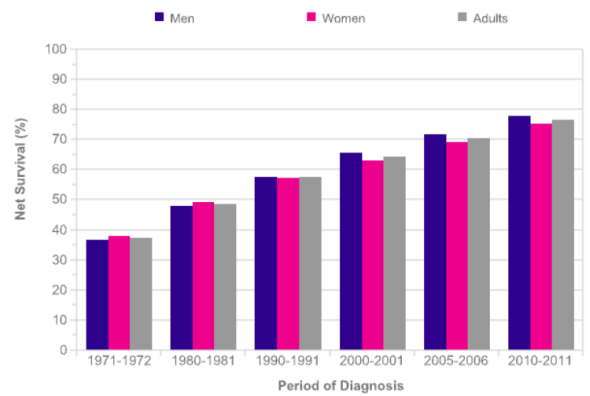
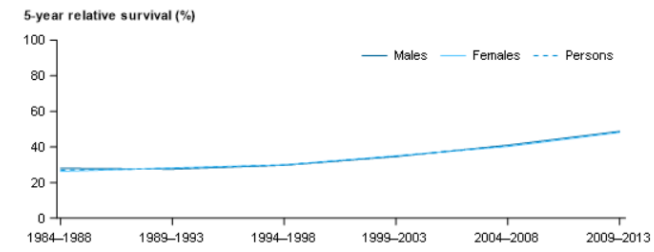
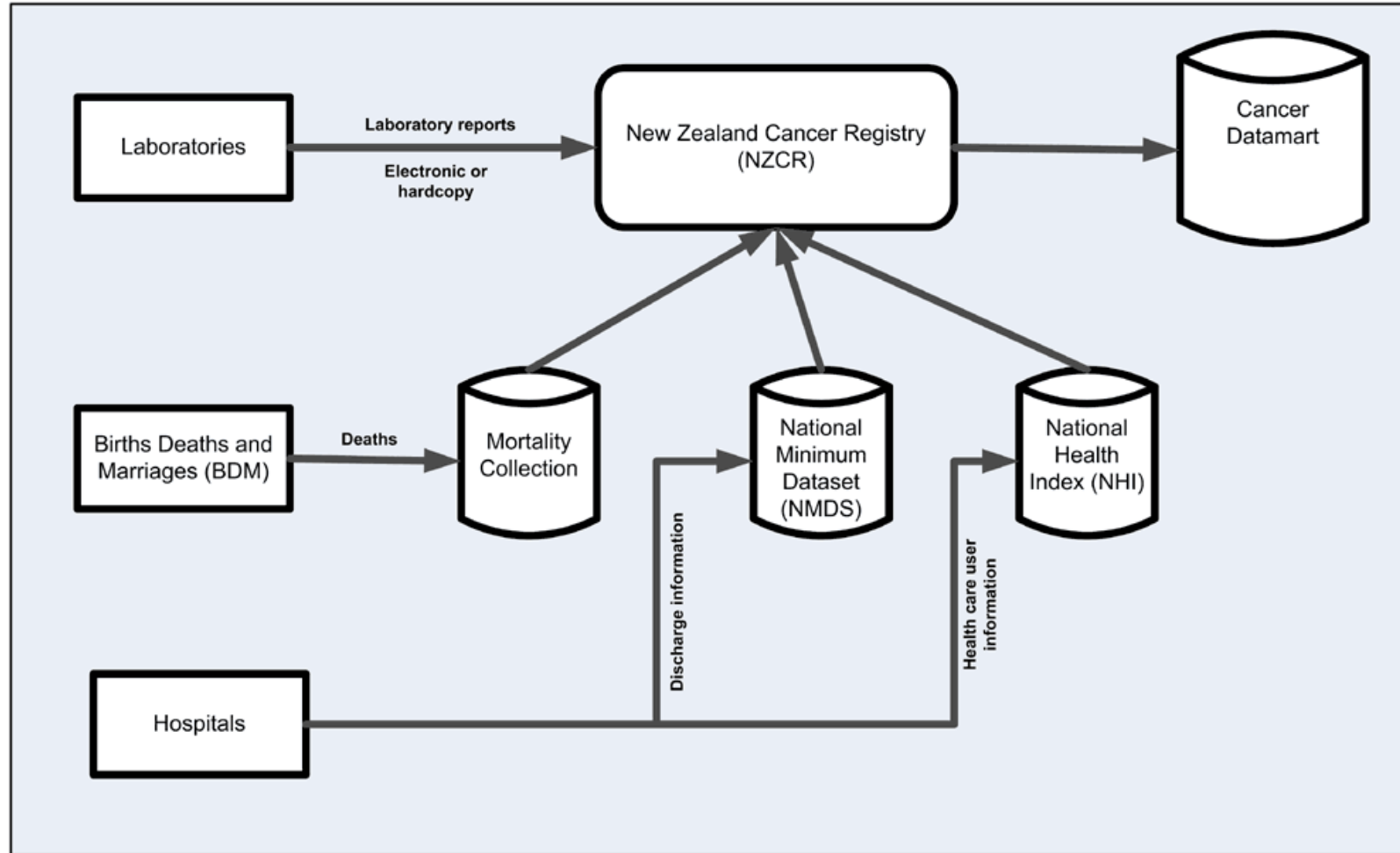


Figure 3: Five-year relative survival from multiple myeloma, by sex, Australia, 1984–1988 to 2009–2013



NEW ZEALAND CANCER REGISTRY



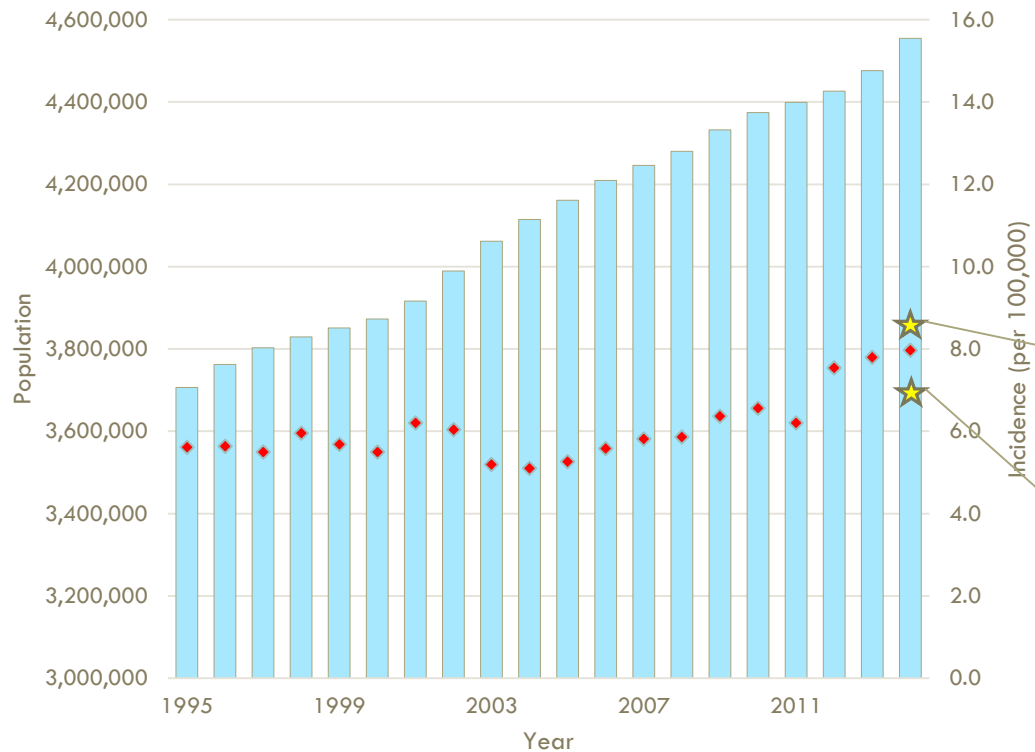
HOW MANY NEW CASES OF MYELOMA?

Year	Number of new cases	Year	Number of new cases
1995	208	2005	219
1996	212	2006	235
1997	209	2007	247
1998	228	2008	251
1999	219	2009	276
2000	213	2010	287
2001	243	2011	273
2002	241	2012	334
2003	211	2013	349
2004	210	2014	363

Total number analysed = 5028

INCIDENCE OVER LAST 20 YEARS

New Zealand Population and Incidence of Multiple Myeloma Between 1995-2014



* ■ NZ population ◆ Incidence

2003 – introduction of IMWG diagnostic criteria

2011 – Christchurch 6.3 earthquake

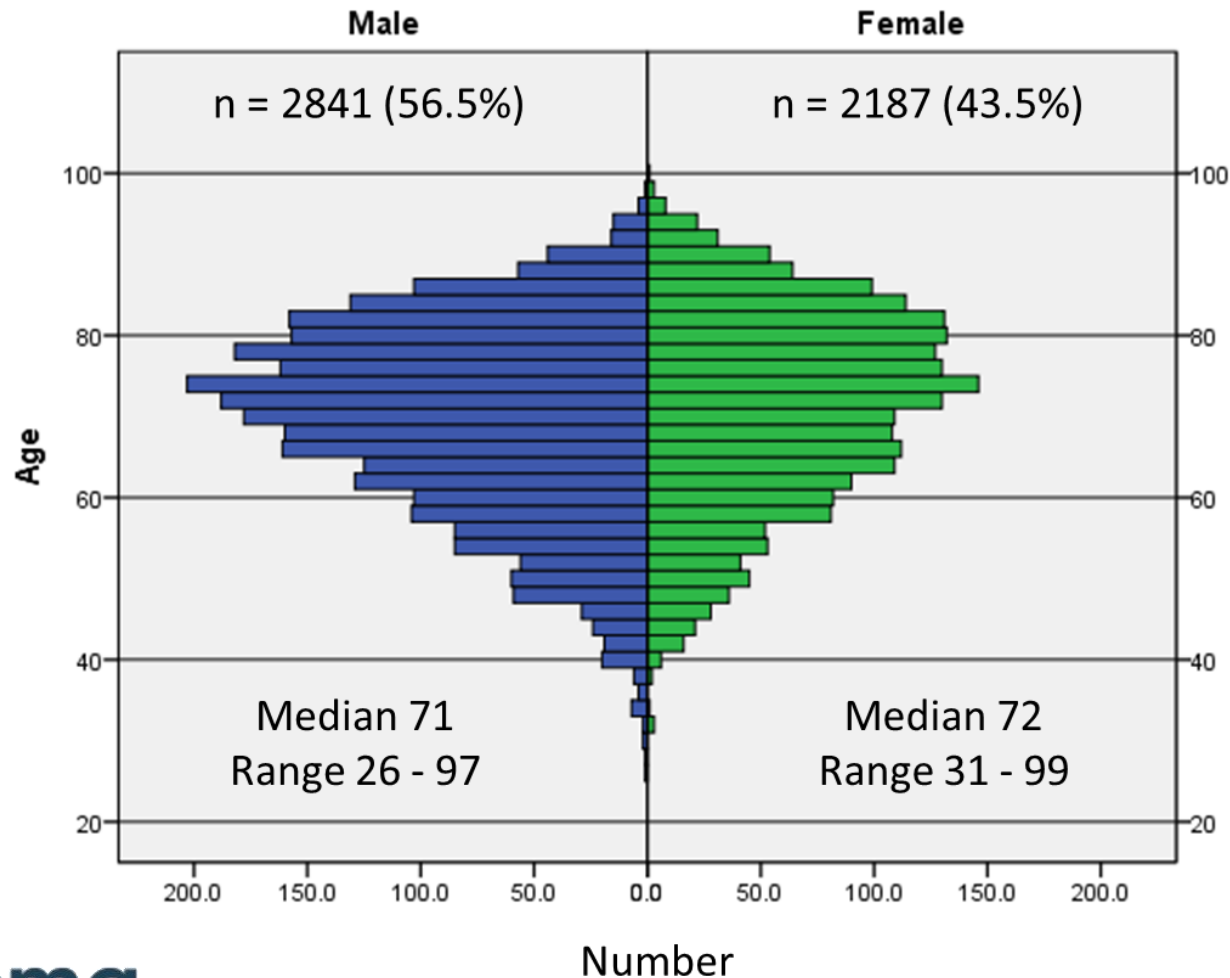
2011 – Introduction of bortezomib in New Zealand

2014 – introduction of the latest IMWG diagnostic criteria

UK 8.5/100,000
(Cancer Research UK)

Australia 7.1/100,000
(Cancer Australia)

AGE AND GENDER DISTRIBUTION



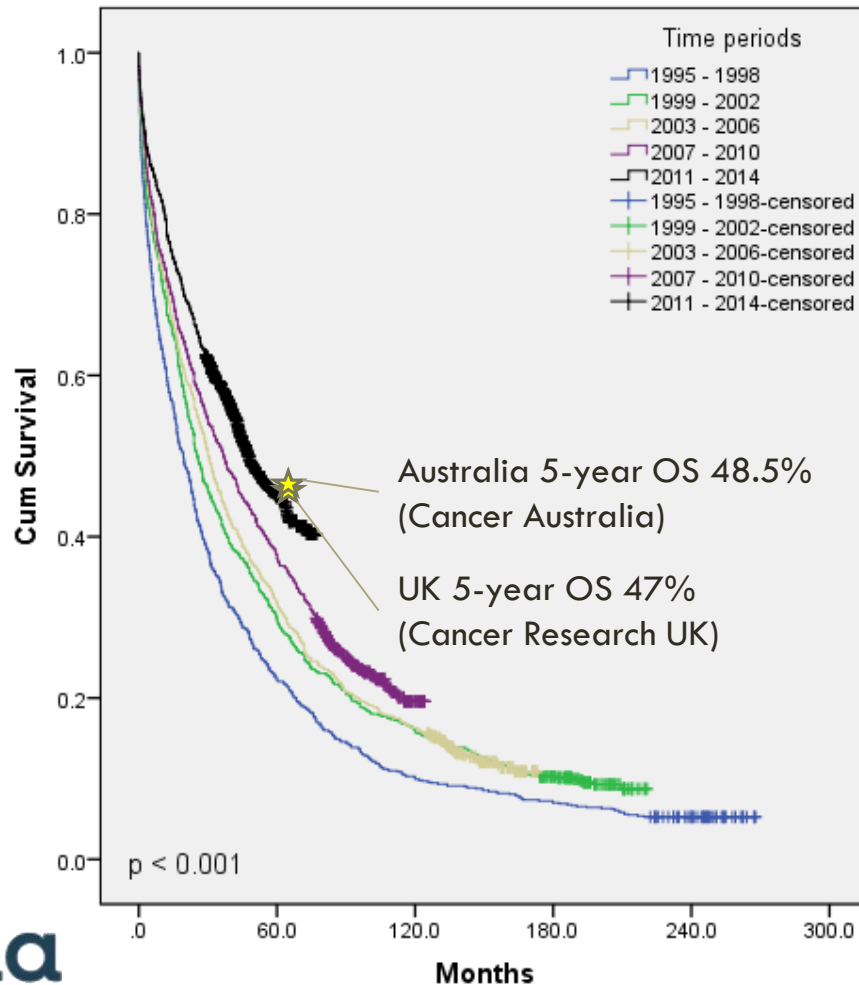
Male = 57%

- No significant difference in gender distribution over these 20 years, $p=0.065$.

Median age = 71

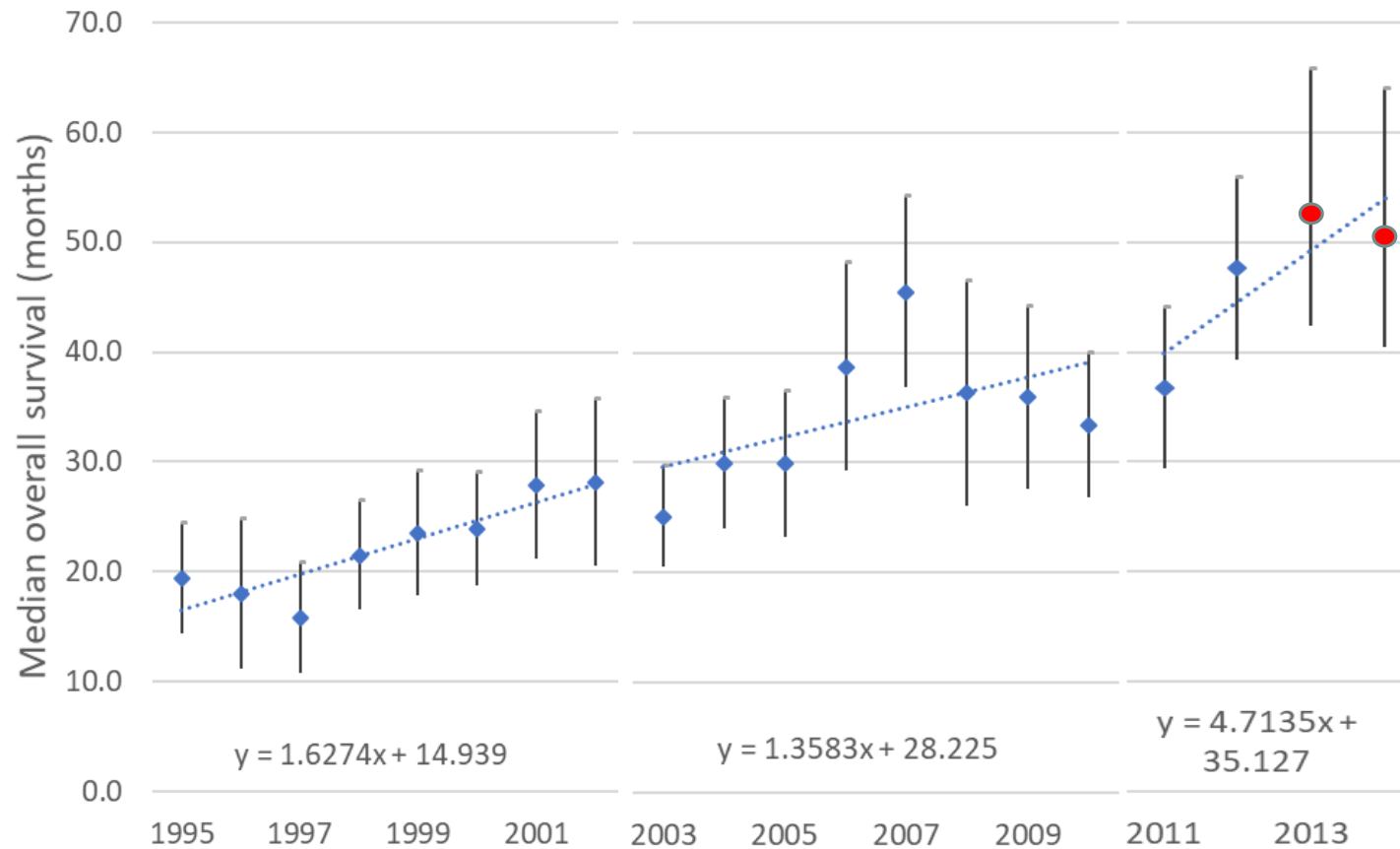
- Range 26-99
- Median age is getting younger from 72 (1995-1998) to 70 (2011-2014), $p=0.011$.

SURVIVAL OVER THE LAST 20 YEARS



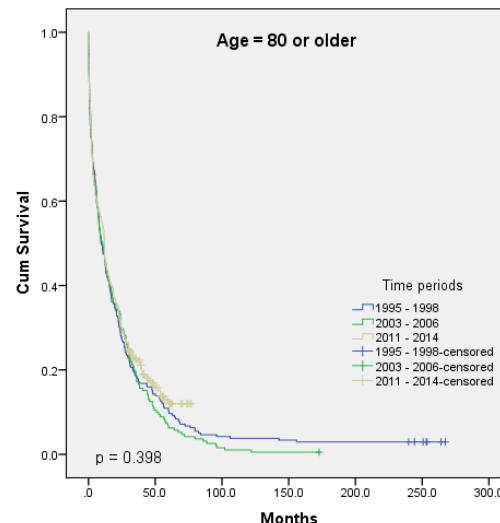
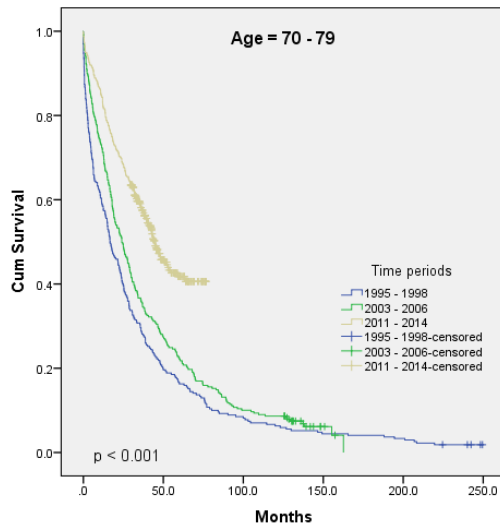
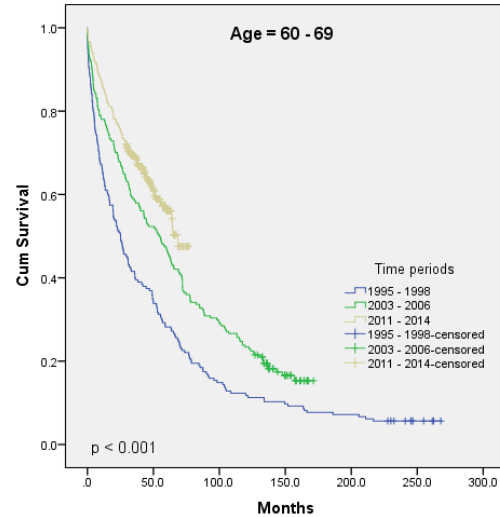
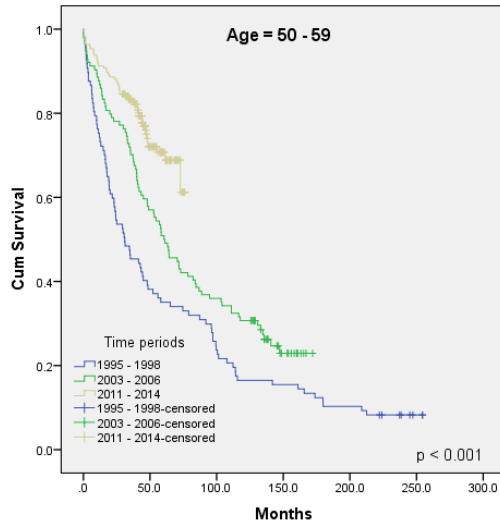
Year	Median OS	5-year OS (%)
1995-1998	19.4	22
1999-2002	25.4	29
2003-2006	30.4	31
2007-2010	37.0	37
2011-2014	47.7	45

SURVIVAL OVER THE LAST 20 YEARS



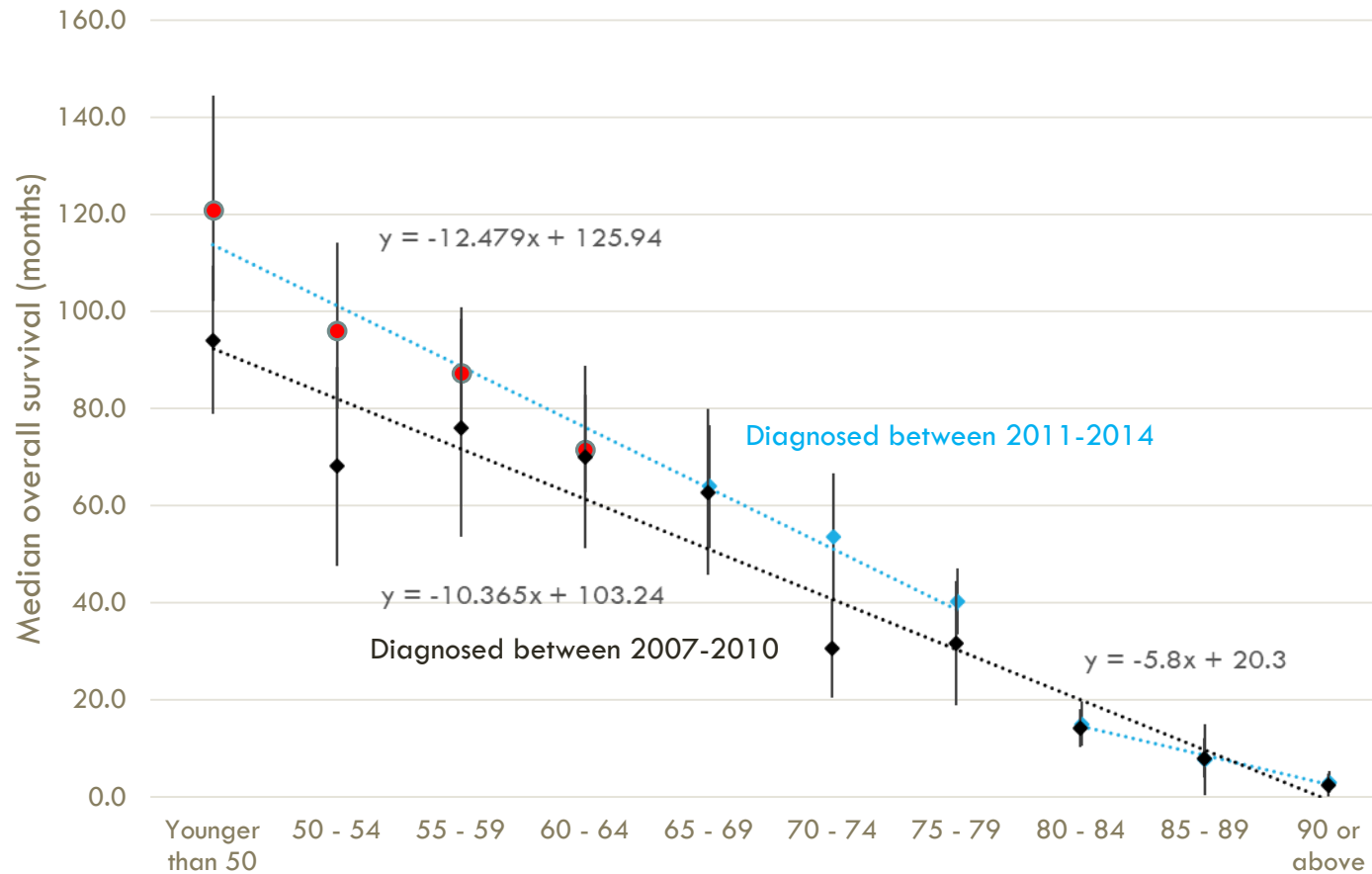
● Estimated median overall survival based on HR compared with 2012

IMPROVEMENT IN SURVIVAL ACROSS AGE GROUPS



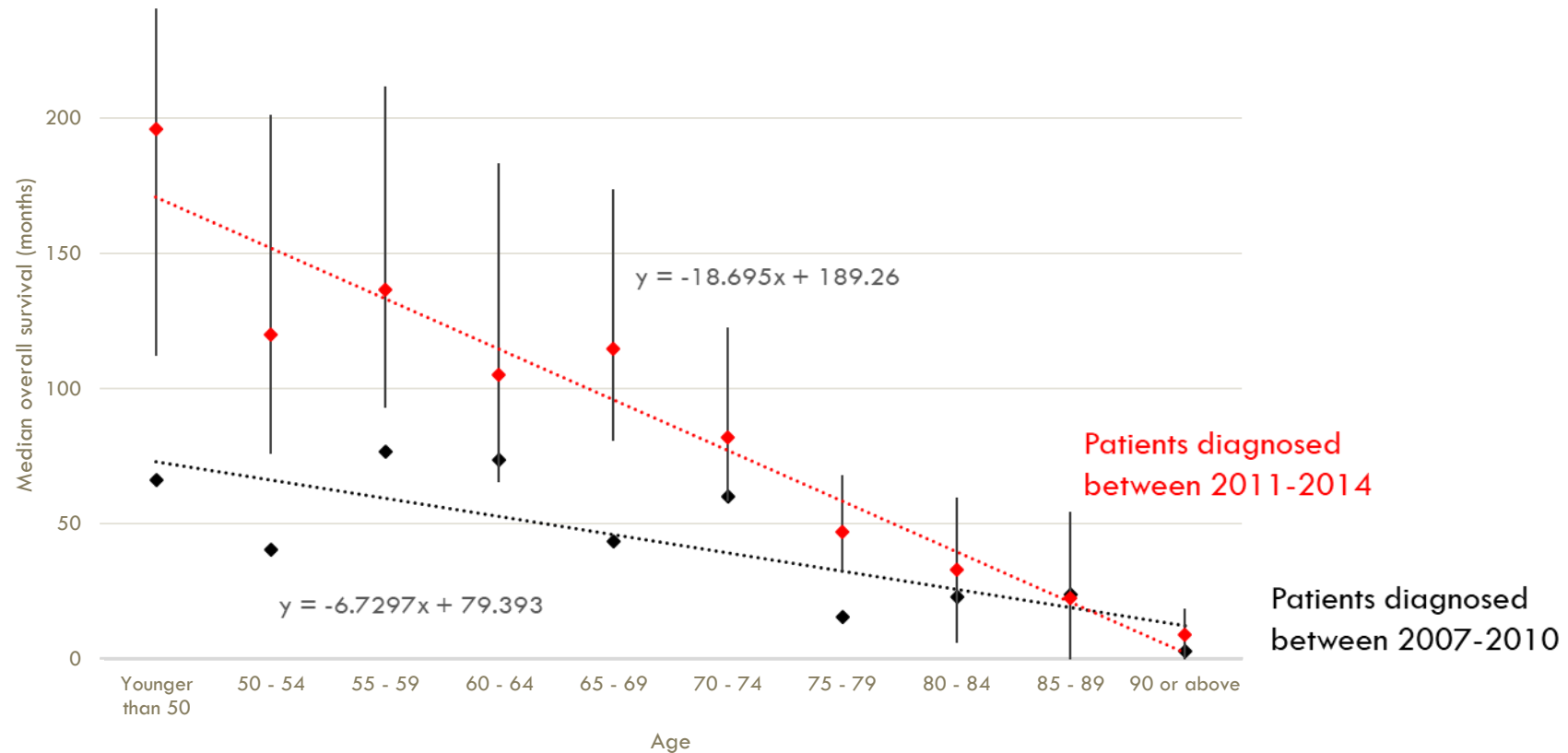
Age	1995-1998	2003-2006	2011-2014
< 50	80.4	92.6	NR
50-59	31.1	60.5	NR
60-69	25.1	54.3	68.5
70-79	16.6	24.0	44.6
≥ 80	9.5	10.5	12.0

MEDIAN OVERALL SURVIVAL AMONGST PATIENTS DIAGNOSED BETWEEN 2011-2014

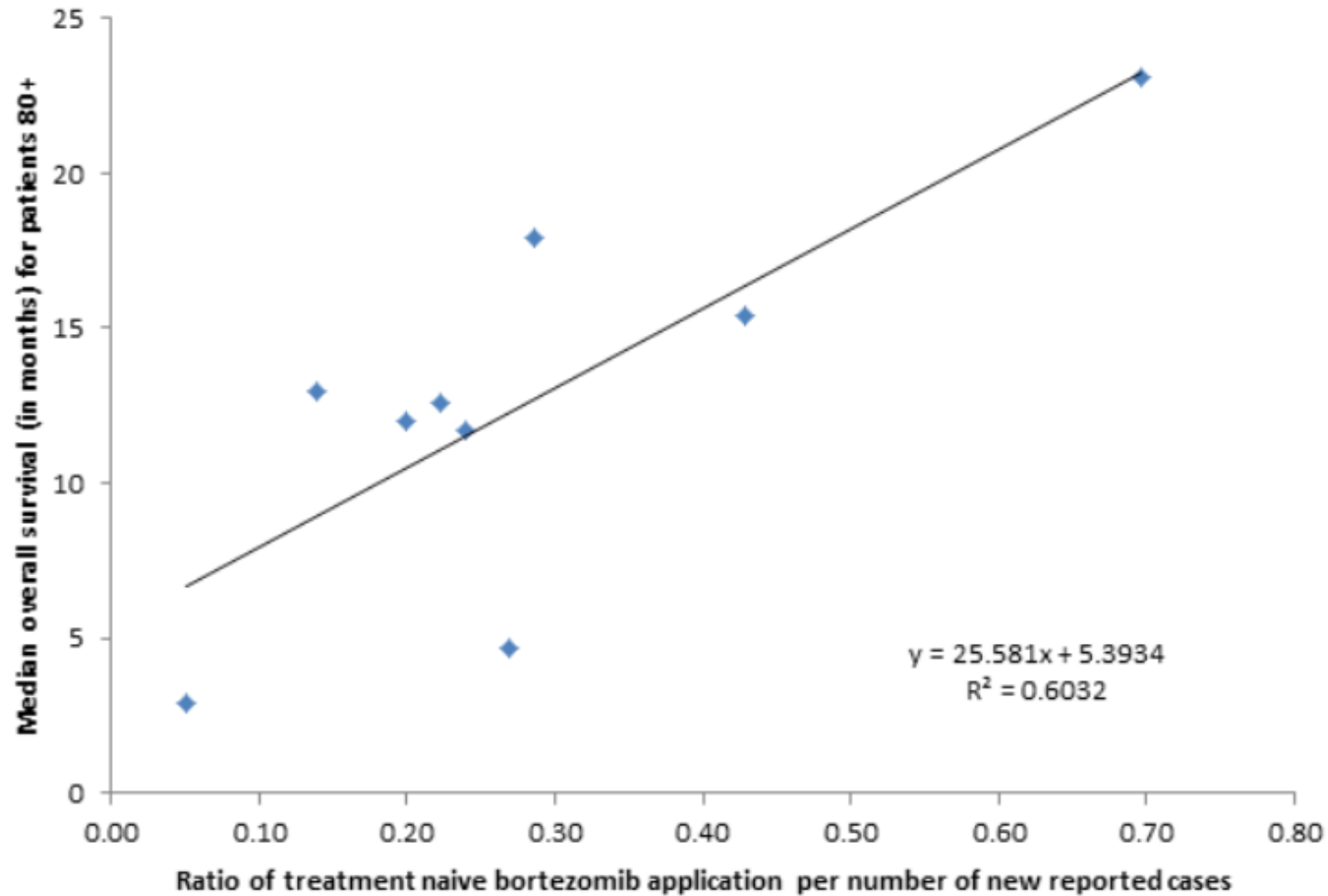


● Estimated median overall survival based on HR compared with those aged 65-69

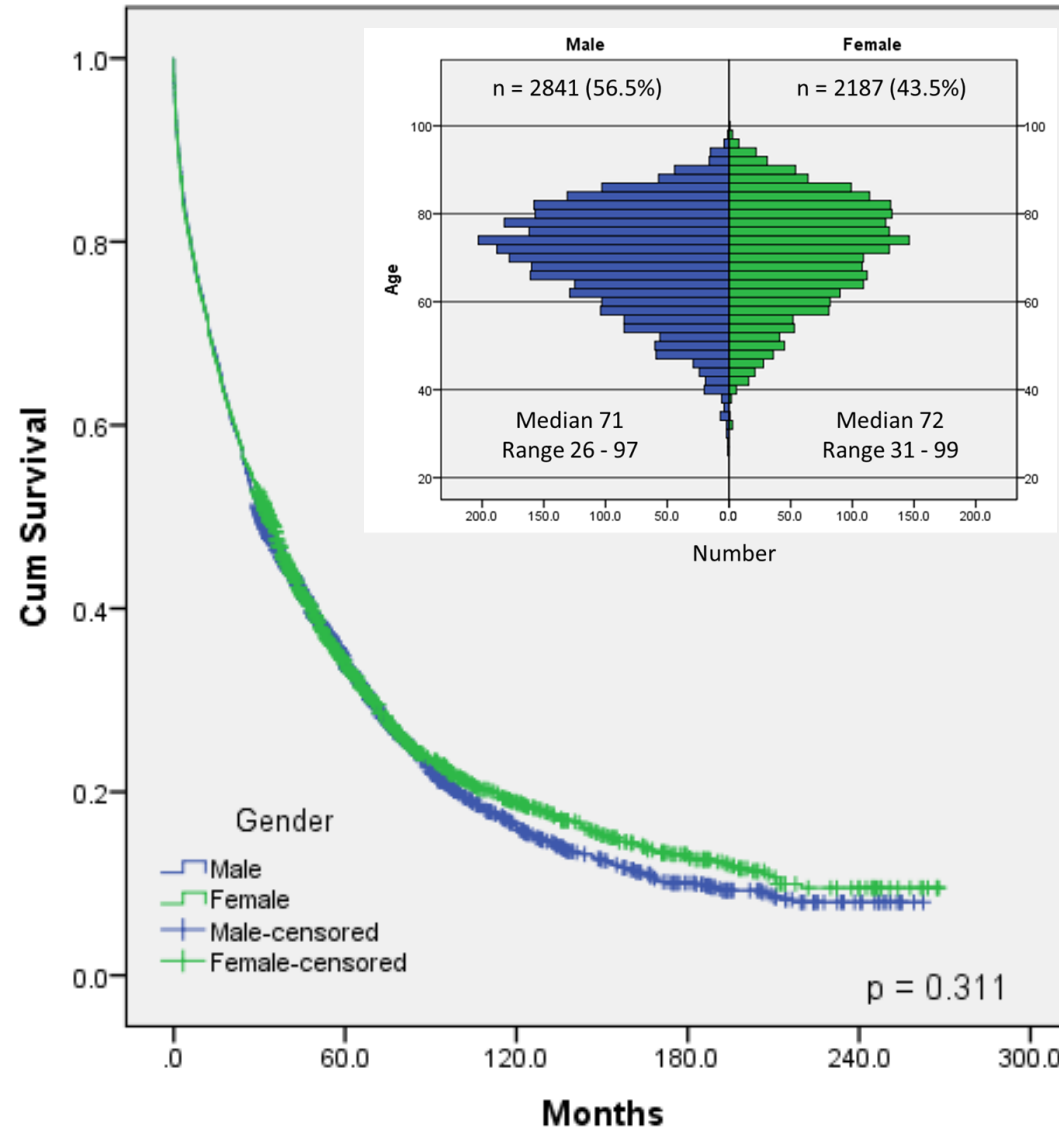
OVERALL SURVIVAL WITH LIBERAL USE OF BORTEZOMIB



BORTEZOMIB IN THE ELDERLIES

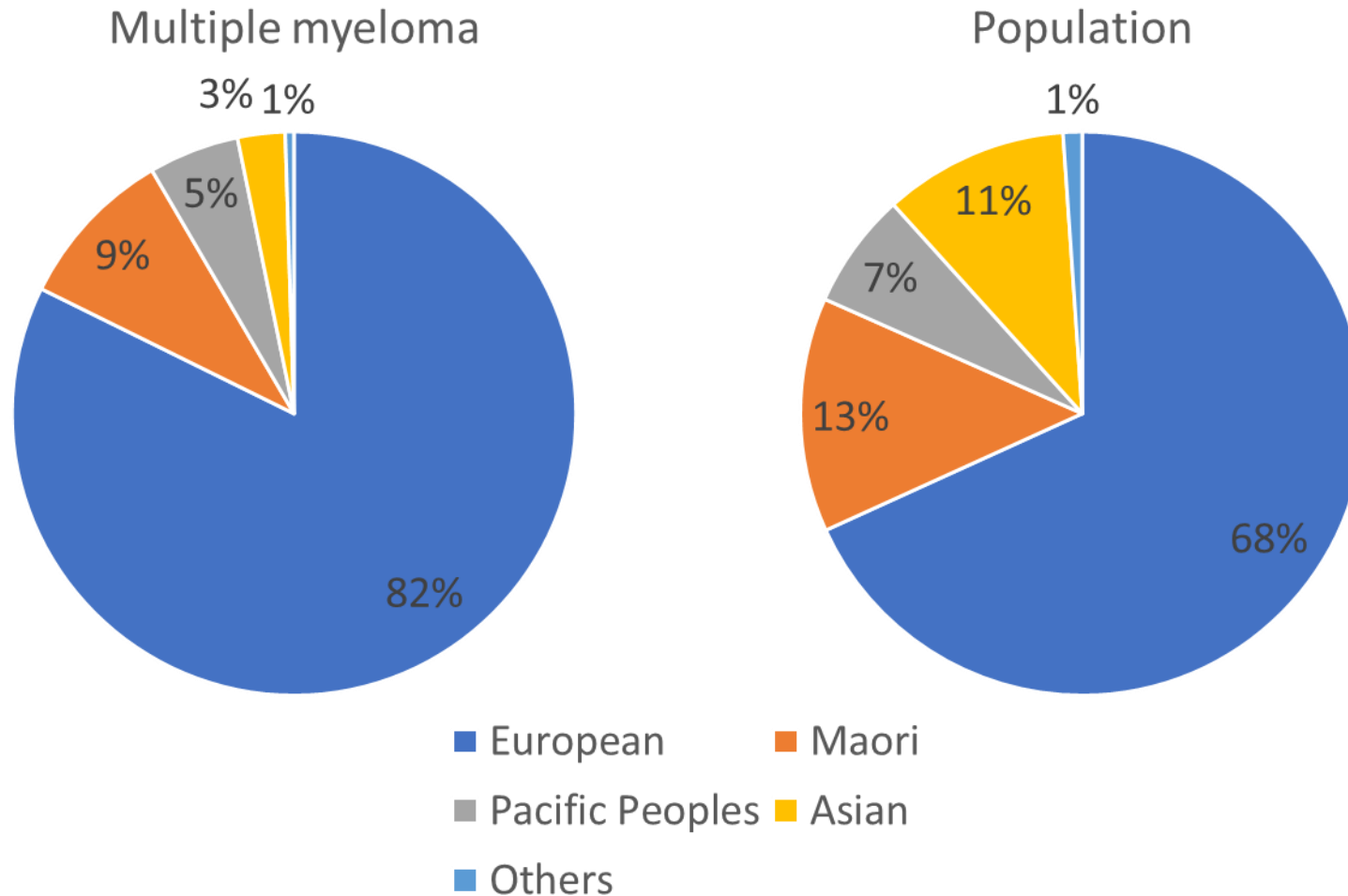


GENDER

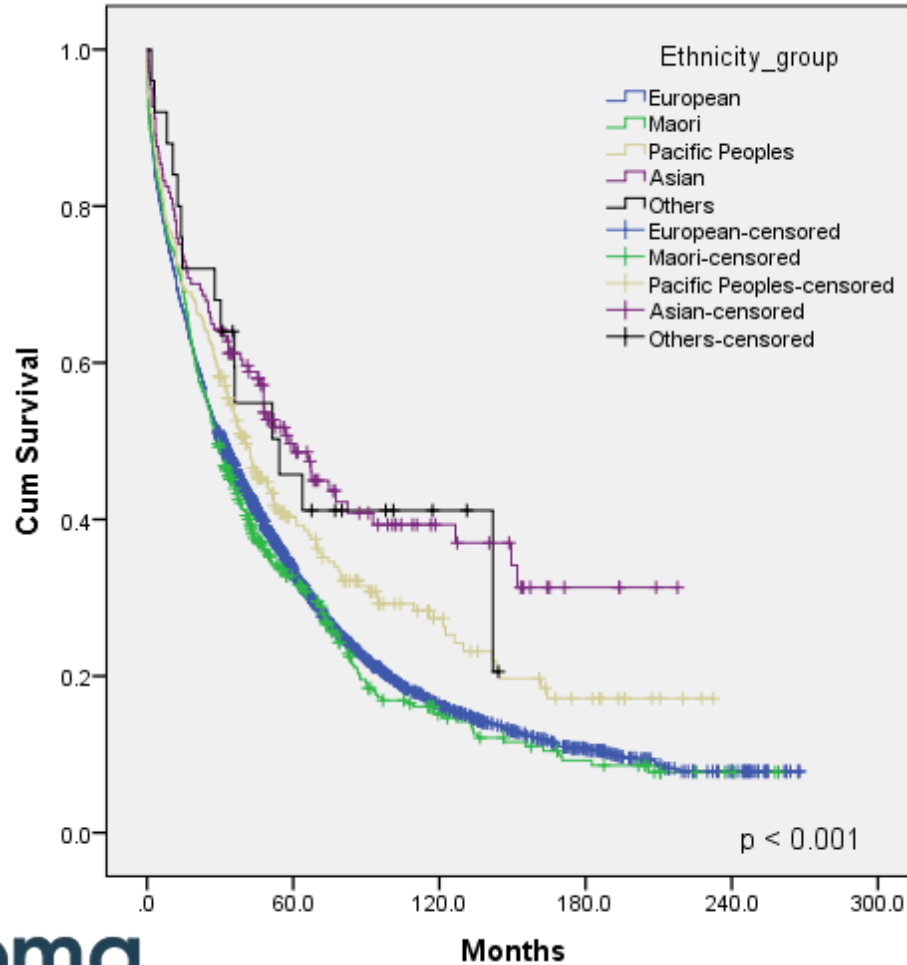


- No difference in survival between genders on univariable analysis.
- Similar results in all 5 time periods
- Male patients were younger overall
- After adjusting for age, the hazard ratio for males is 1.109 (p=0.002)

ETHNICITY



SURVIVAL BY ETHNICITY



Ethnicity	Median OS (months)	HR*	p-value
European	30.7	-	-
Maori	29.1	1.461	<0.001
Pacific Peoples	40.2	0.969	0.686
Asian	58.2	0.661	<0.001
Others	54.3	0.666	0.116

* HR compared with European ethnicity adjusted for age, gender and SE deprivation. European as the comparator.

SOCIO-ECONOMIC DEPRIVATION

Linking NZCR data with socio-economic deprivation index (NZDep2013) by domicile codes

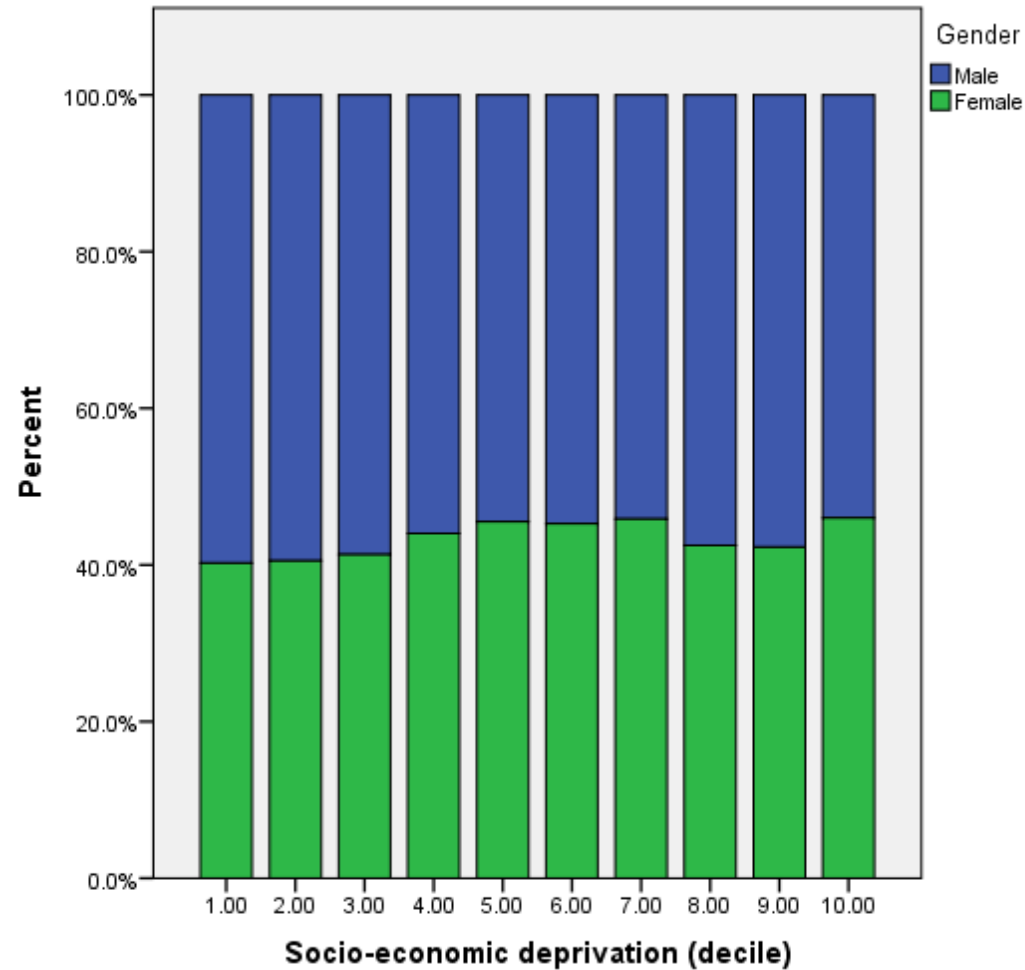
Information collected in NZDep2013 to formulate the deprivation index	
Income	Family structure
Home ownership	Housing
Employment	Access to transport
Qualifications	Access to communications

Decile 1 represents areas that are least deprived, and decile 10 represents areas that are most deprived.

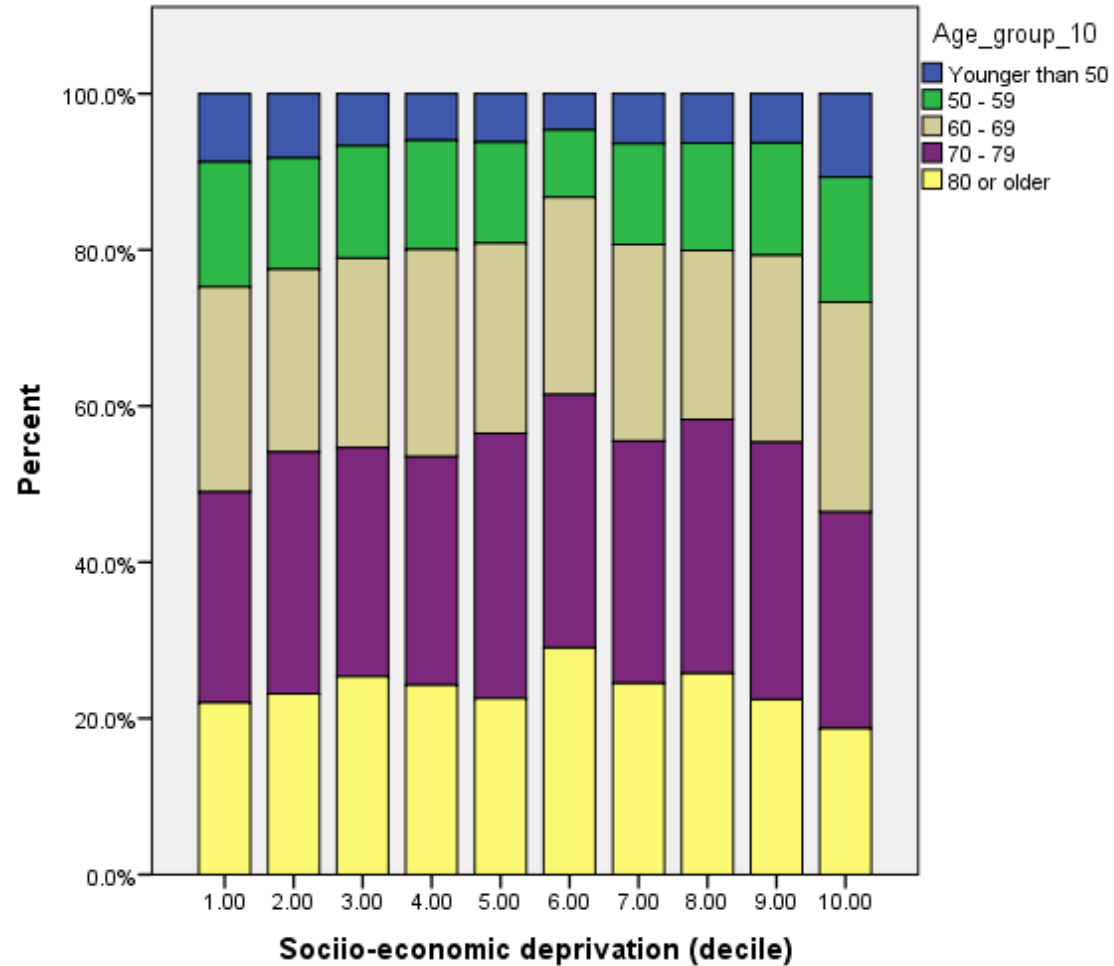
Compared to NZDep2006:

- 5 areas had their socio-economic status moved by 5 deciles
- 7 areas moved by 4 deciles
- 14 areas by 3 deciles
- 92 areas by 2 deciles
- 696 areas by 1 deciles
- 902 areas remained unchanged

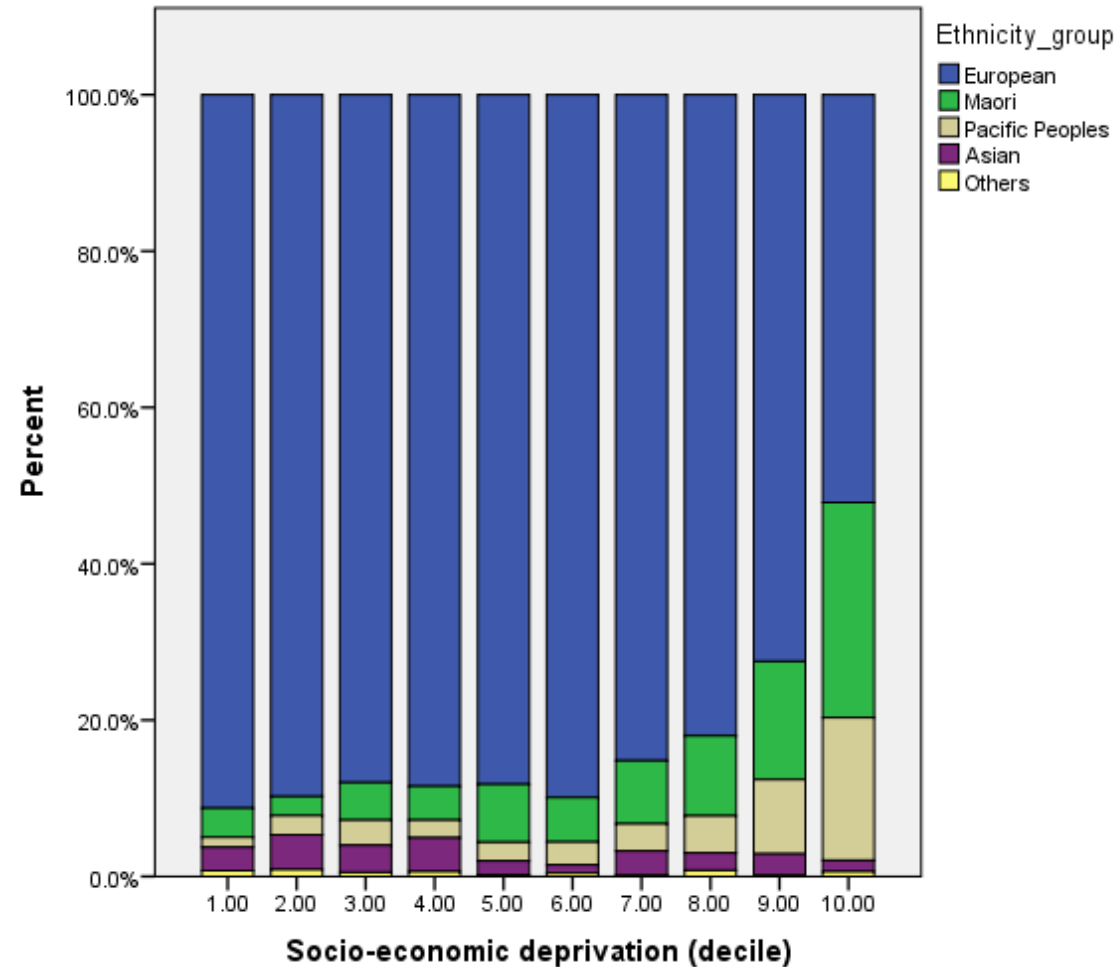
SOCIO-ECONOMIC DEPRIVATION STRATIFIED BY BASELINE CHARACTERISTICS



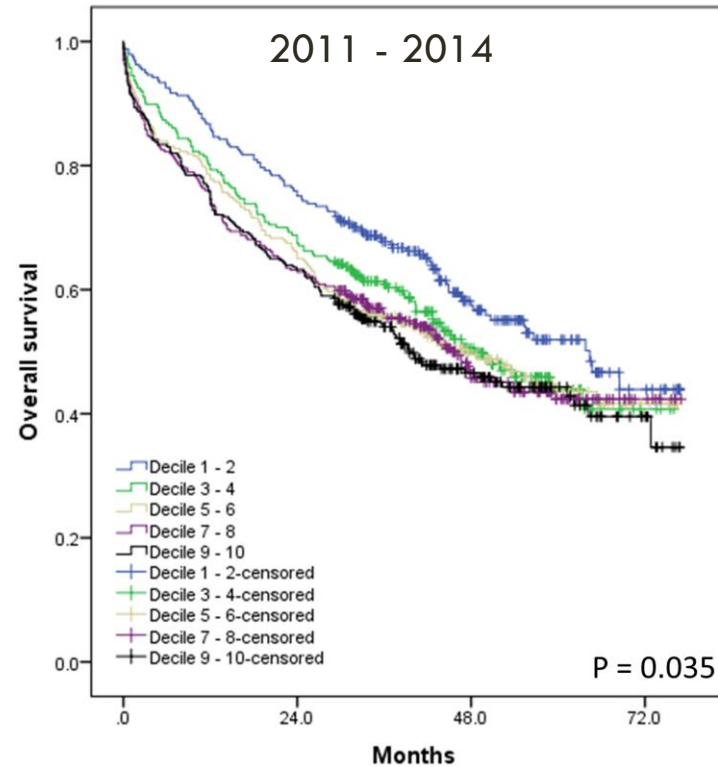
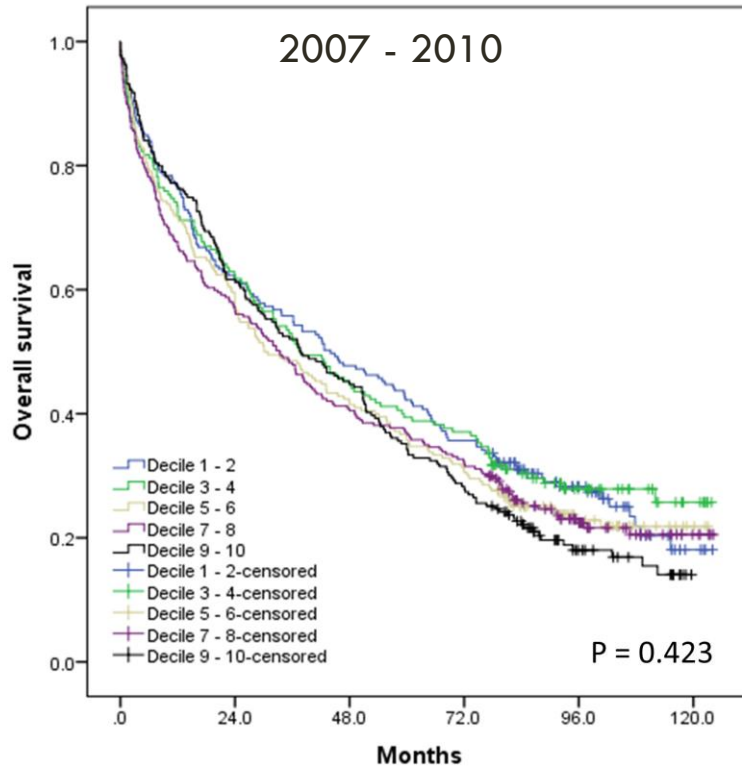
SOCIO-ECONOMIC DEPRIVATION STRATIFIED BY BASELINE CHARACTERISTICS



SOCIO-ECONOMIC DEPRIVATION STRATIFIED BY BASELINE CHARACTERISTICS



SOCIO-ECONOMIC DEPRIVATION AND OVERALL SURVIVAL



	Median overall survival (months)			
	2007 - 2010	2011 - 2014	Improvement	p-value
Decile 1-2	44.0	64.4	20.4	0.010
Decile 3-4	37.5	48.6	11.1	0.187
Decile 5-6	30.1	47.6	17.5	0.051
Decile 7-8	33.4	45.5	12.1	0.043
Decile 9-10	37.7	39.5	1.8	0.315

SUMMARY

Similar to other countries, the incidence of multiple myeloma has increased over the last 20 years.

Overall survival has dramatically improve over this period

Age, gender, socio-economical deprivation, and ethnicity remain as significant prognostic factors even in the era of novel agents.

Median overall survival appears to have a linear relationship with the age of which the patient is diagnosed.

Patients older than the age of 80 and those who are most socio-economically deprived have only experienced a minimal improvement in survival outcome following introduction of bortezomib.

LOOKING INTO THE FUTURE



Improve on what we have

- Optimising bortezomib usage
- Improving safety of stem cell transplant

New drugs/treatment on the horizon

- Maintenance treatment
- New drugs
- Immunotherapy
- CAR-T therapy

More tailored treatment

- Risk adapted therapy
- Response adapted therapy

THANK YOU