CRC screening: will it be equitable for Māori ?

Melissa McLeod
Senior Research Fellow and PhD candidate
University of Otago, Wellington NZ

Overview

Colorectal cancer screening case study within my PhD on equity in CEA methods

McLeod et al. Colorectal cancer screening: Variation in health gain and cost-effectiveness by ethnic group, and the optimal age-range to screen. BMC Cancer (in press)

BODE^3 programme funded by HRC

Māori PhD scholarship from University of Otago

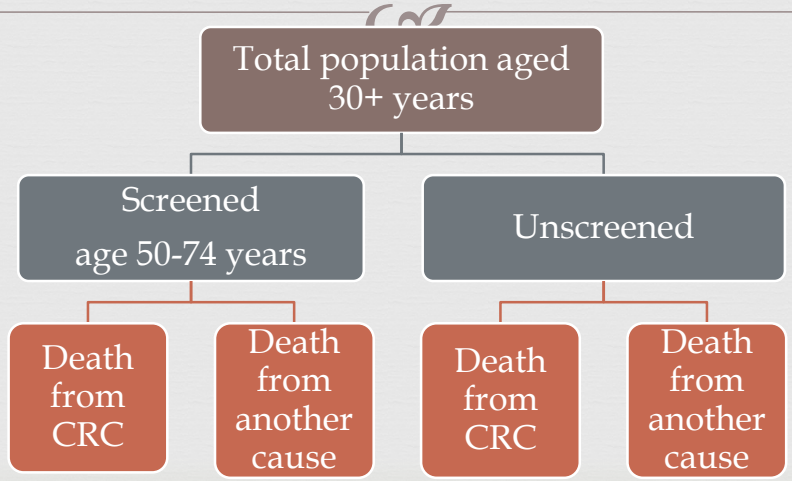
bode^3
Burden of Disease Epidemiology, Equity and Cost Effectiveness Programme

CRC screening background

- NZ CRC pilot programme from 2010
- Biennial FOBT for men and women aged 50-74 yrs
- Invitation, information and kit through mail
- Screening coverage achieved in round 1 of the pilot
  - Māori 45%
  - Non-Māori 58%

- NZ considering **National rollout** of CRC screening programme

CRC screening model



Key questions

1. Would the national rollout of a CRC screening programme in NZ be cost-effective?
2. What is the likely impact of this programme on inequalities in health for Māori compared to non-Māori

Cost-effective? YES

	Total	Males	Females	Māori	Non-Māori
ICER*	$2930 ($cs,$6850)	$1020 ($cs,$5060)	$5070 ($cs,$8950)	$10,500 ($4500,$17900)	$2420 ($cs,$6230)

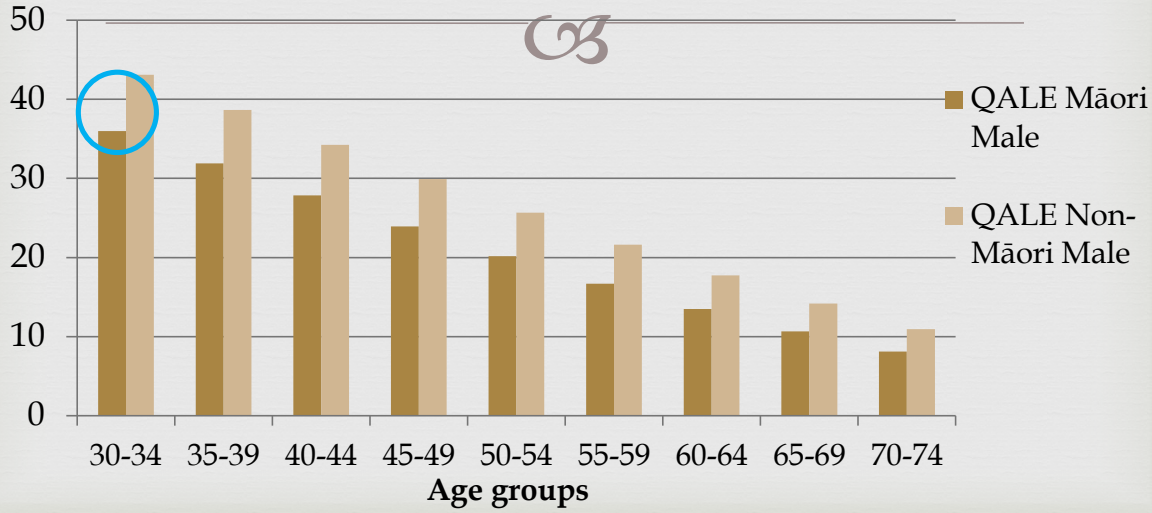
Impact on inequalities for Māori ?
1. Lower health gains

Age std (30-74yr total population) QALYs gained per capita

	Male	Female	All
Non-Māori	0.052	0.042	**0.047**
Māori	0.029	0.026	**0.027**

Due to lower background life expectancy,
Lower CRC incidence,
And lower expected screening coverage (based on pilot round 1)

2. Quality-adjusted life-expectancy



Increased inequalities in QALE

- QALE increases more for non-Māori than for Māori with CRC screening
- Non-Māori gained an additional 7.2 (-3.9, 17.8 in women aged 30-34) to 25.6 (12.5, 40.3 in men aged 60-64) healthy days over Māori.
- CRC screening is likely to increase absolute and relative inequalities in QALE.

What can we do?

- Improve treatment - little modelled health gain but not the only reason to do it.
- Increase screening coverage (our model used pilot coverage)
  - Equal screening coverage (0.036 vs 0.047 QALYs per capita)
  - Māori screening coverage to get equal per capita gains is around 73%
- Pick a different intervention

Summary

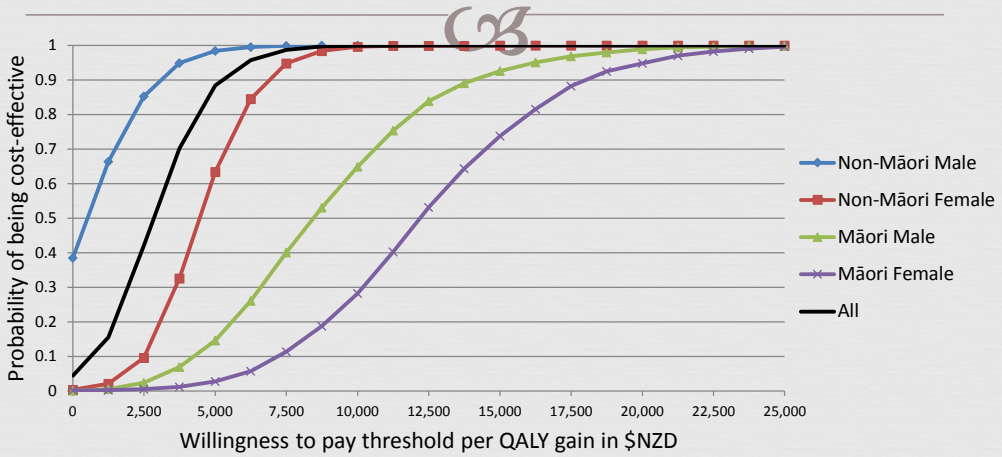
- CRC screening very likely to be cost-effective for all groups, and results in health gains for all groups.
- Greater health gains for non-Māori as a result of lower background mortality, higher incidence, and higher screening coverage.
- Increase inequalities (absolute and relative) in QALE
- Poses a difficult decision between improving total population health and reducing inequalities.

Acknowledgements

- Co-authors of the paper:
  - Dr Giorgi Kvizhinadze
  - Dr Matt Boyd
  - Assoc Prof Jan Barendregt
  - Prof Diana Sarfati
  - Prof Nick Wilson
  - Prof Tony Blakely

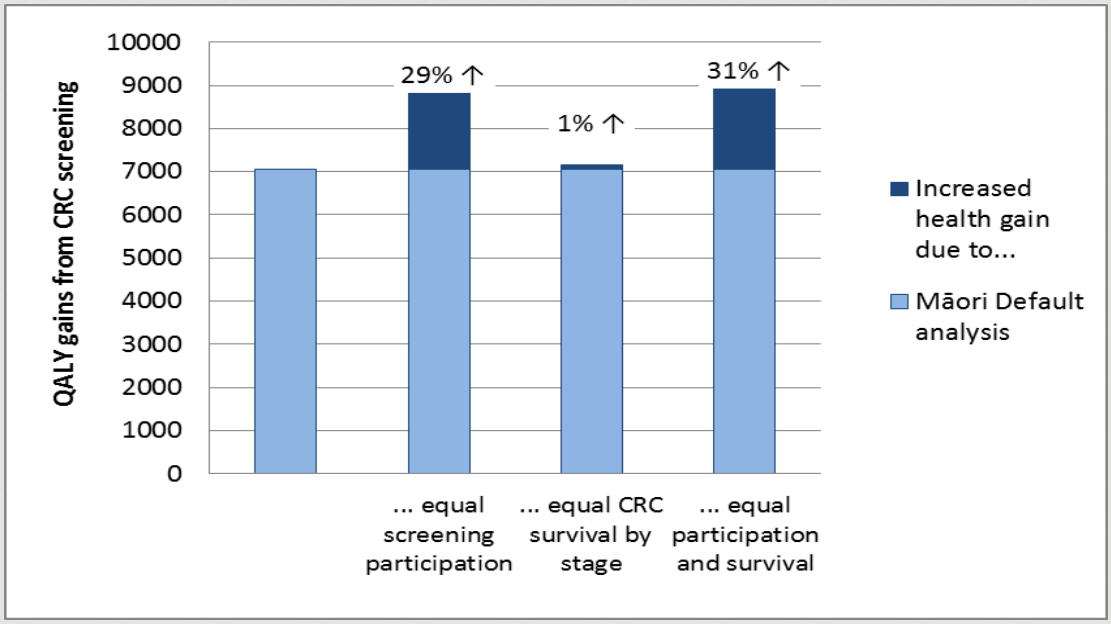
Melissa.Mcleod@otago.ac.nz

CRC screening cost-effective



Equal health

	Population group	QALYs gained (% change from default)	ICER
Default model	Total	104,000	$2,530
	Non-Māori	96,600	$2,090
	Māori	7,060	$8,650
1. Māori background mortality and trend replaced with non-Māori values	Māori	9,140 **(29%)**	$5,670
2. Māori background morbidity replaced with non-Māori values	Māori	7,320 **(3%)**	$8,350
3. (1 and 2)	Māori	9,490 **(34%)**	$5,460
4. Māori CRC incidence trends replaced with non-Māori values	Māori	5,920 **(-17%)**	$12,300
5. Māori CRC incidence replaced with non-Māori values	Māori	8,730 **(23%)**	$4,900
6. (4 and 5)	Māori	7,200 **(-2%)**	$8,150


QALY gains from CRC screening
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
29% ↑
1% ↑
31% ↑
... equal screening participation
... equal CRC survival by stage
... equal participation and survival
Increased health gain due to...
Māori Default analysis