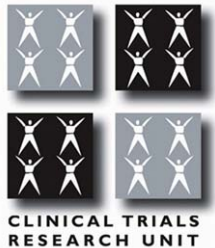


Burden of Disease from High BMI in New Zealand

Cliona Ni Mhurchu





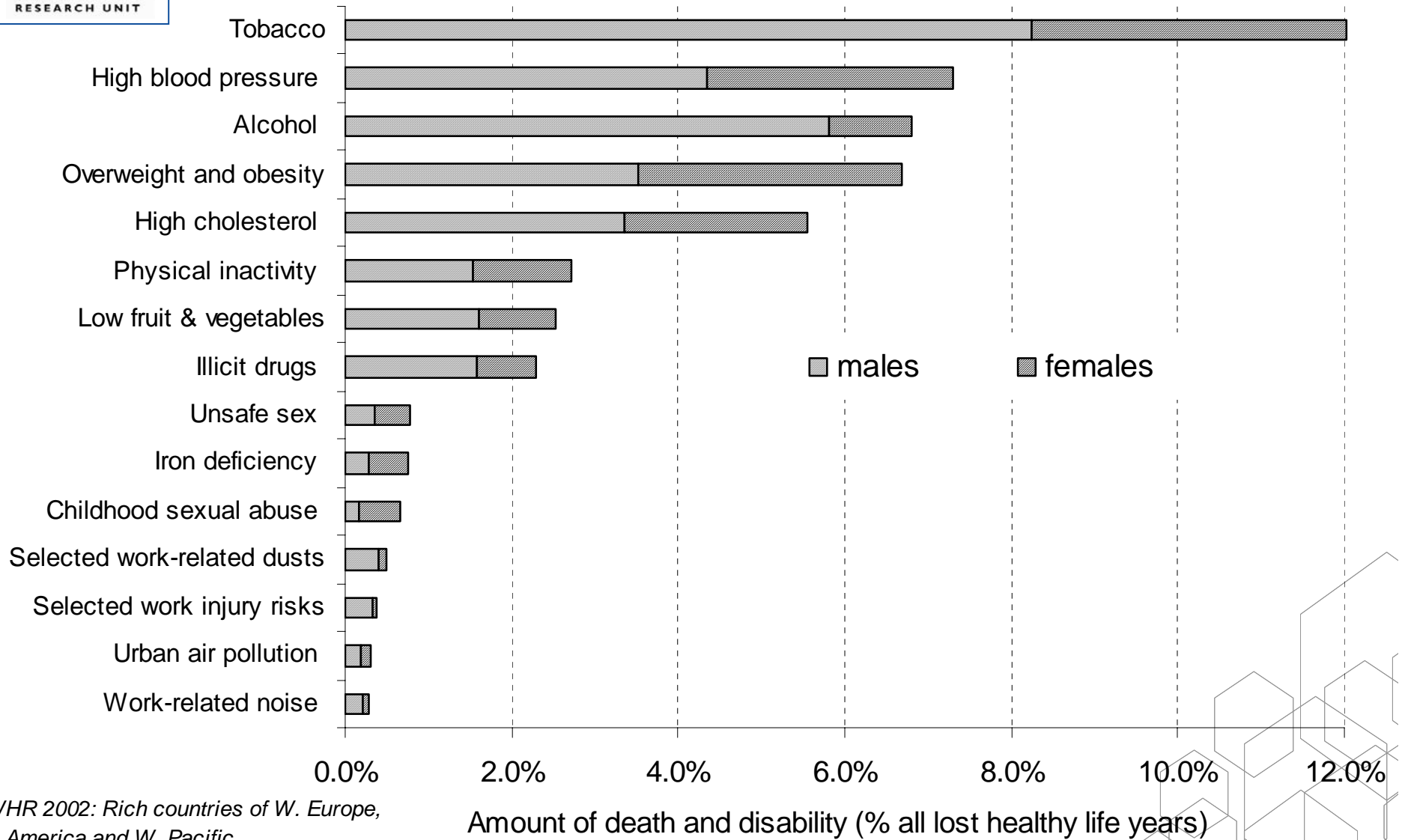
Global burden of overweight and obesity

- 300 million obese and 750 million overweight individuals worldwide
- Global burden of disease attributable to excess BMI = 30 million DALYs (mainly IHD and DM)
- Current trends predicted to persist





2002 World Health Report - leading 15 risks in developed regions

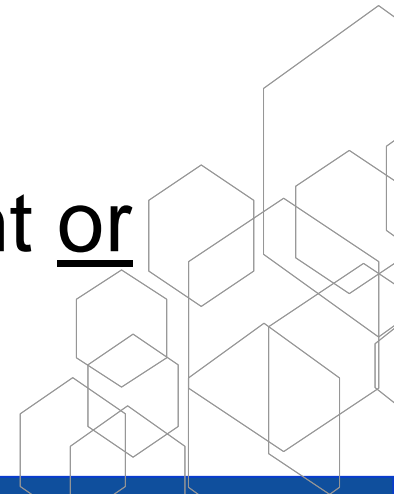


WHR 2002: Rich countries of W. Europe,
N. America and W. Pacific



Obesity in New Zealand

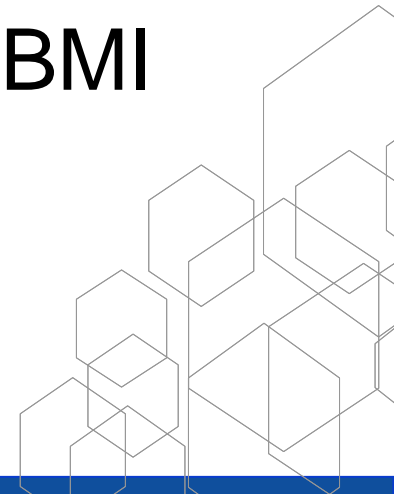
- 19-21% adults are obese:
 - 17-19% European/Other
 - 27-32% Maori
 - 34-46% Pacific peoples
- ~55% adults are overweight or obese
- ~31% children are overweight or obese





NZ burden of obesity - study objectives:

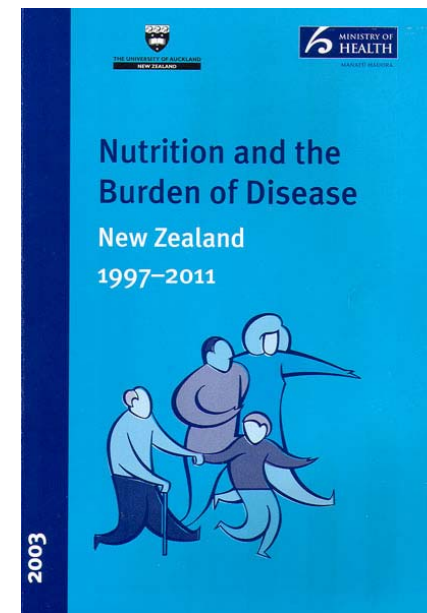
- To estimate the burden of mortality in New Zealand in 1997 due to higher than optimal BMI ($>21 \text{ kg/m}^2$)
- To estimate mortality that could be avoided in 2011 with feasible changes in mean population BMI





Nutrition and the burden of disease: New Zealand 1997 - 2011

- Examined the impact of 4 nutrition-related risk factors on the burden of disease in New Zealand:
 - Blood pressure
 - Total blood cholesterol
 - Vegetable and fruit intake
 - Body mass index





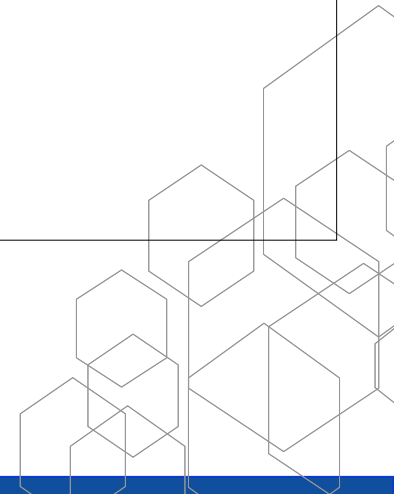
Comparative risk assessment

Risk factor distributions

Risk factor-disease relationships

Disease burden

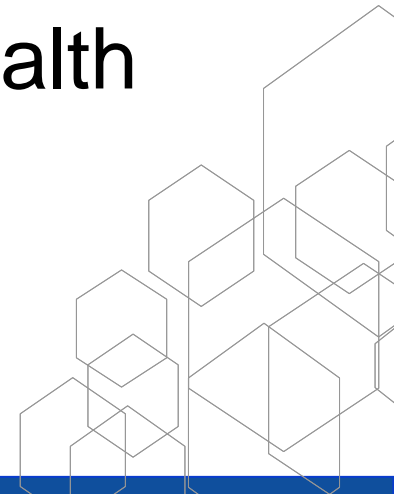
Attributable burden in 1997
Avoidable burden by 2011
(by age sex and ethnic subgroups)





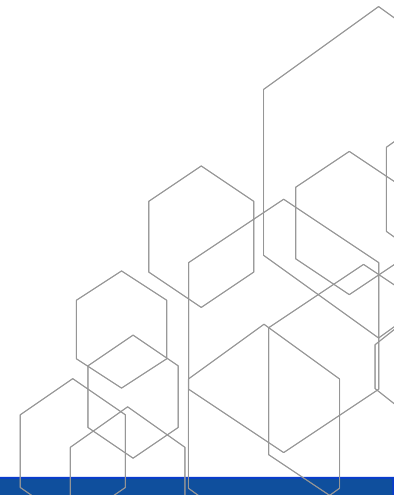
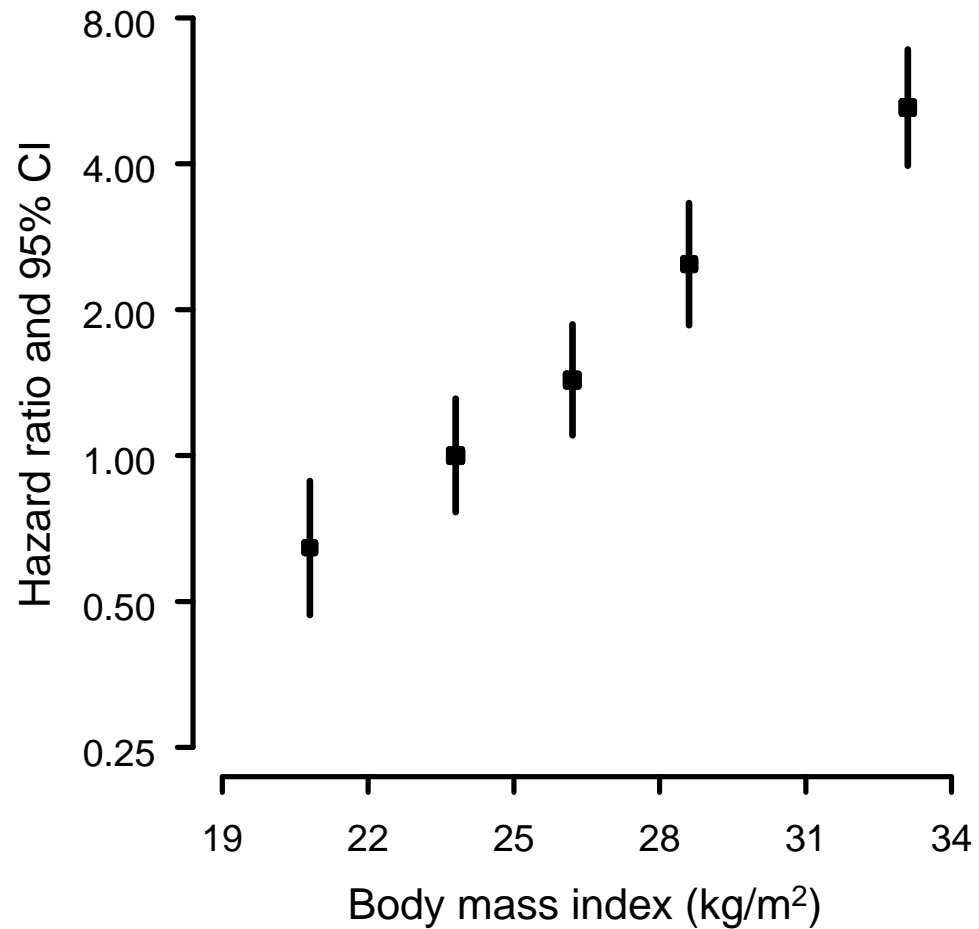
Theoretical minimum

- $21 \pm 1 \text{ kg/m}^2$
- Used in GBD Study
- Evidence suggested that this BMI distribution would yield the lowest population risk of adverse health outcomes





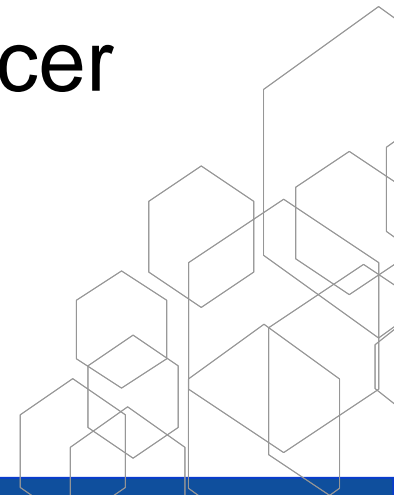
Rationale for theoretical minimum: BMI and DM





Mortality outcomes

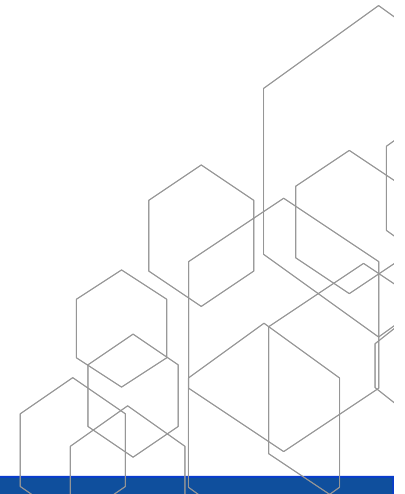
- Ischaemic heart disease (IHD)
- Ischaemic stroke
- Type II diabetes
- Colorectal cancer
- Post-menopausal breast cancer





Mortality data

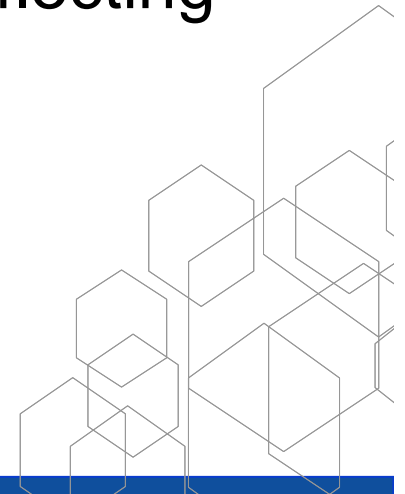
- Current burden (1997):
 - The number of deaths by 10-year age group from the New Zealand Health Information Service (NZHIS) mortality database.
- Future burden (2011):
 - Projections based on modelling





Avoidable mortality

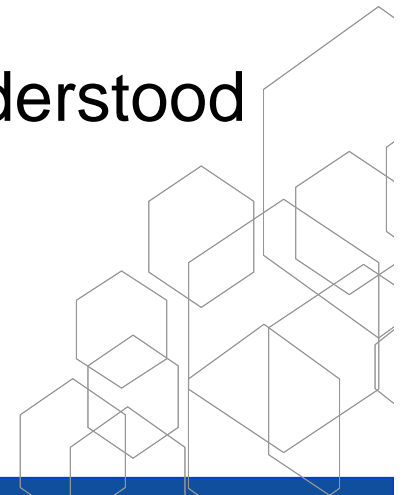
- “Business as usual” (BAU) scenario
 - Based on historical trends
- Intervention scenario
 - Deviation from historical trend reflecting policy change





Measure of burden

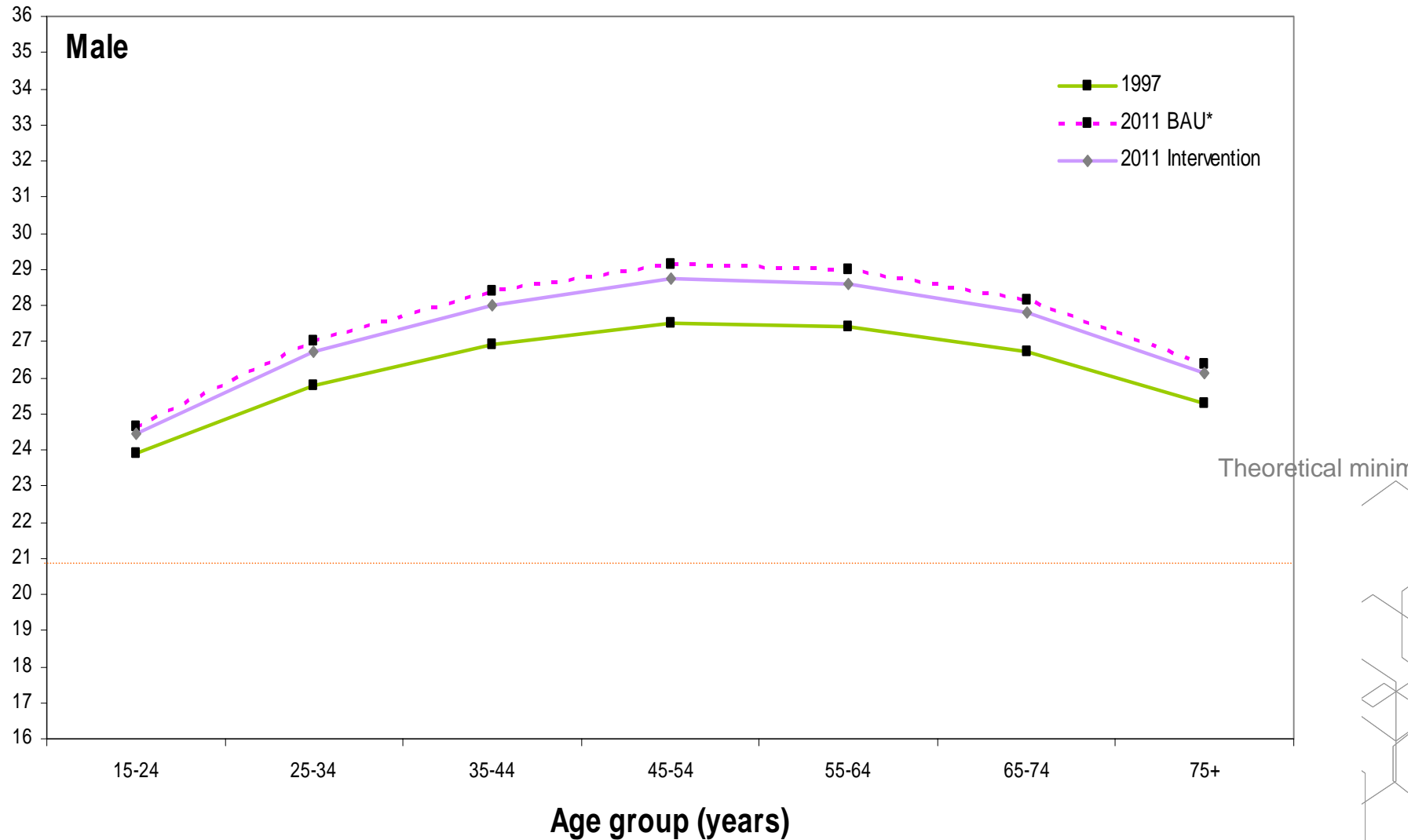
- Disability-adjusted life year (DALY)
 - A summary of both fatal and non-fatal outcomes (integrated measure of population health)
 - Recognises importance of widely prevalent, disabling conditions
- Mortality
 - Simple, unambiguous, easily understood
 - Widely available





BMI distribution (1997) - males: 26.2 (4.4) kg/m²

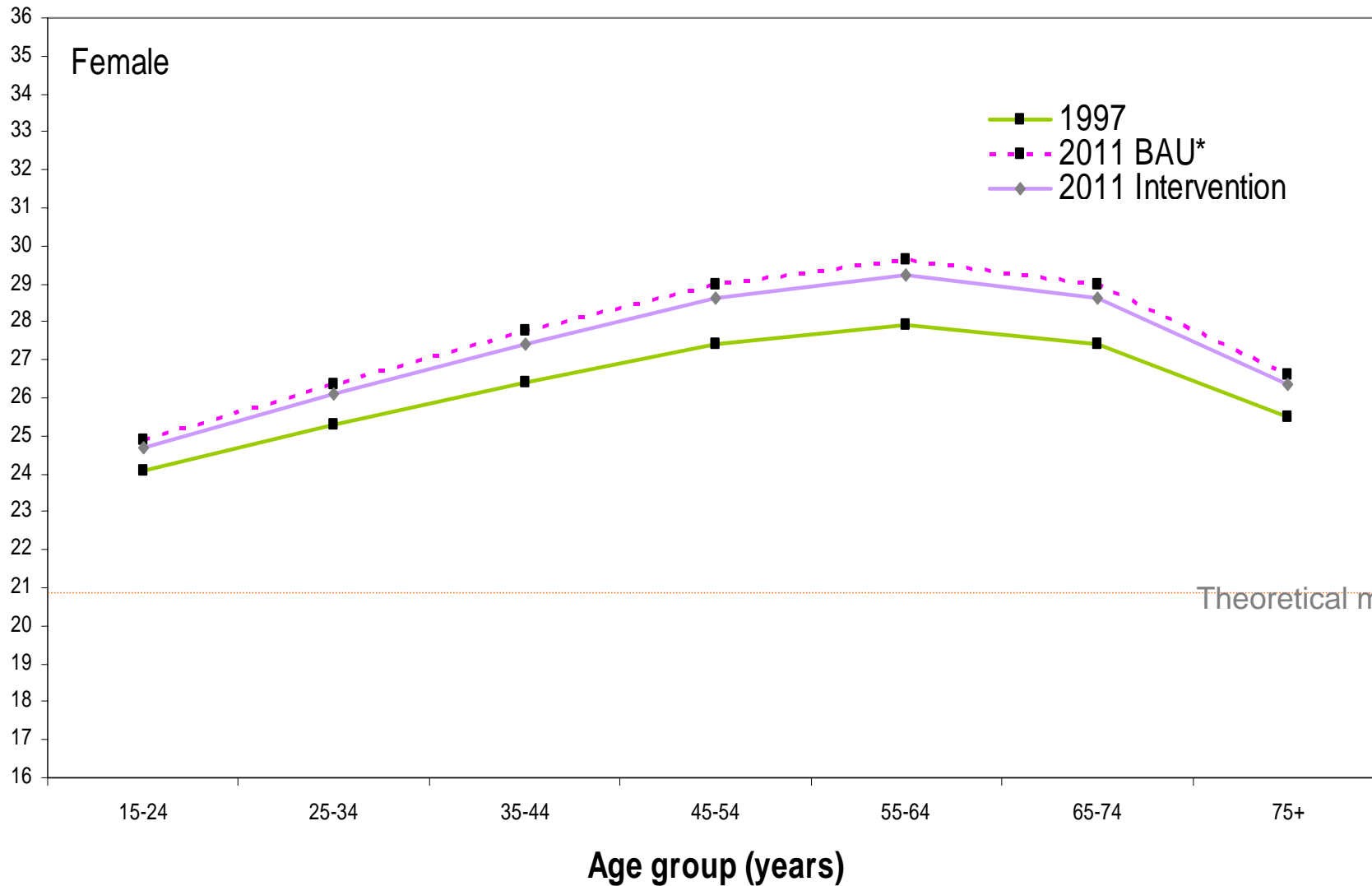
BMI (kg/m²)





BMI distribution (1997) - females: 26.1 (5.6) kg/m²

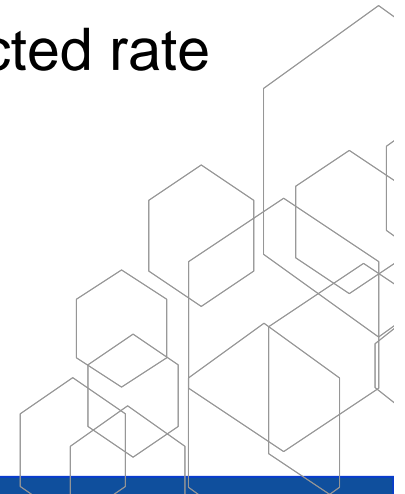
BMI (kg/m²)





Avoidable mortality

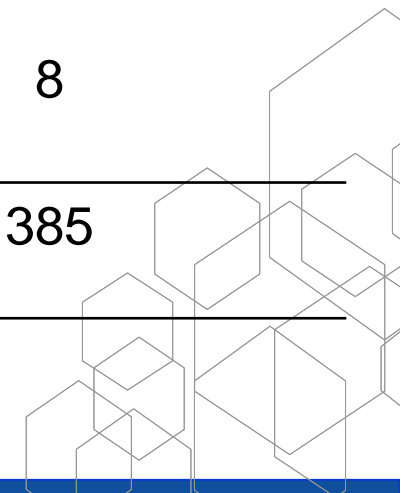
- **BAU**
 - Increase of 1.3 kg/m² by 2011
 - 25% further shift away from theoretical minimum
- **Intervention scenario**
 - Increase of 1.0 kg/m² by 2011
 - 19% further shift away from theoretical minimum
 - Approx. one quarter reduction in projected rate of increase





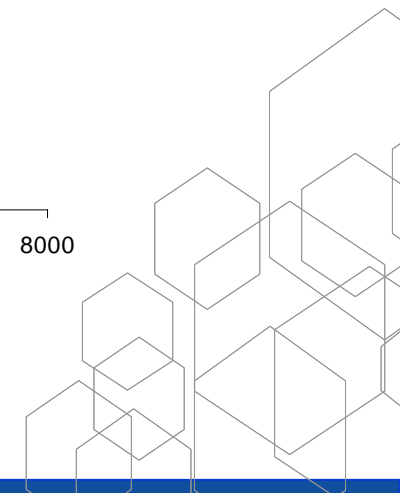
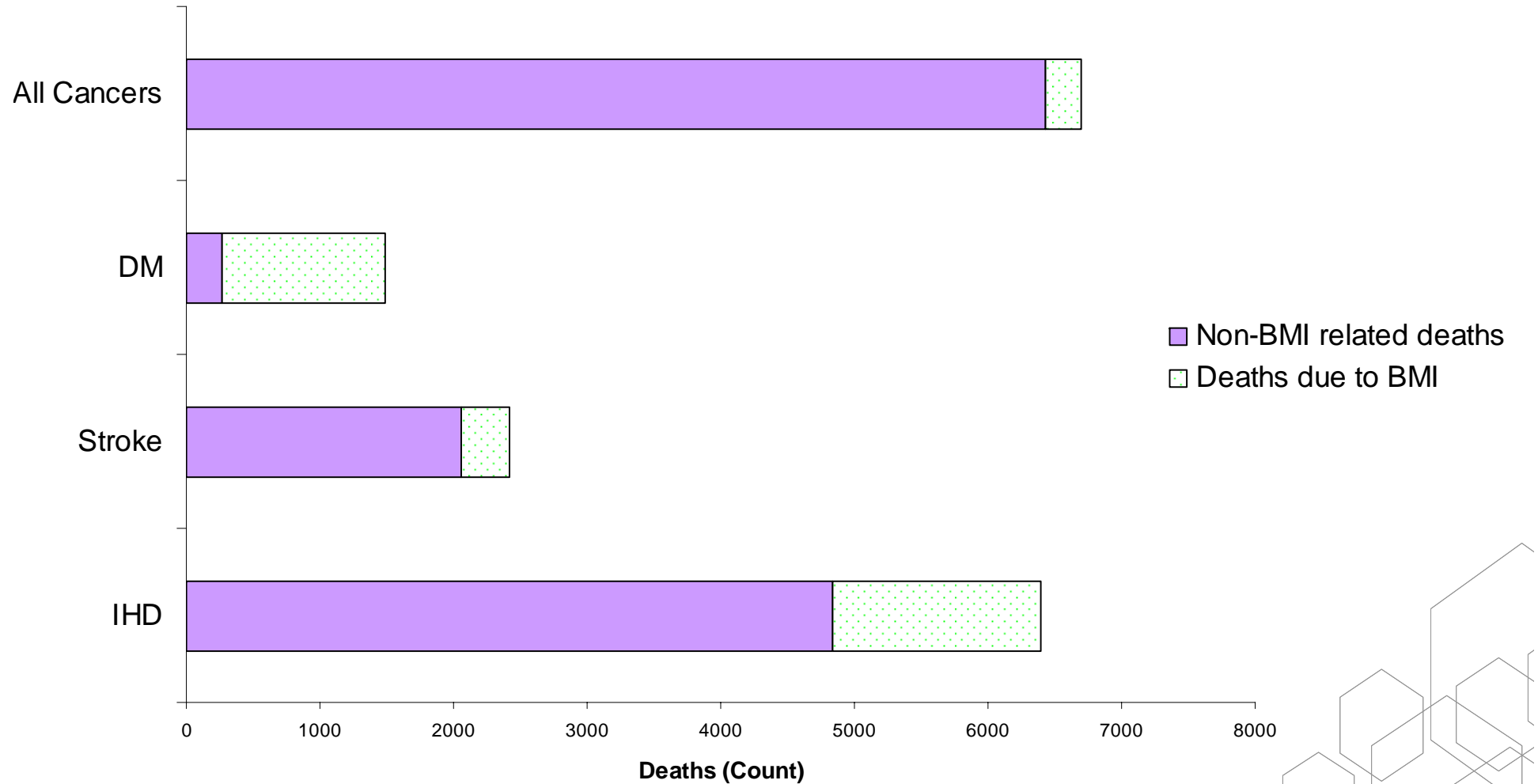
Mortality due to high BMI

Disease Outcome	Attributable mortality 1997	Avoidable mortality 2011
Heart Disease	1561	85
Stroke	367	25
Diabetes	1231	323
Colorectal cancer	177	13
Post-menopausal breast cancer	91	8
Total	3154 (11%)	385



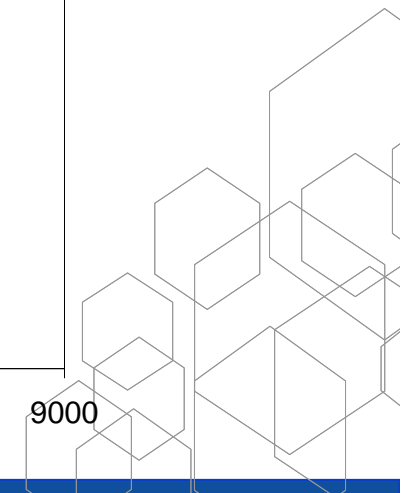
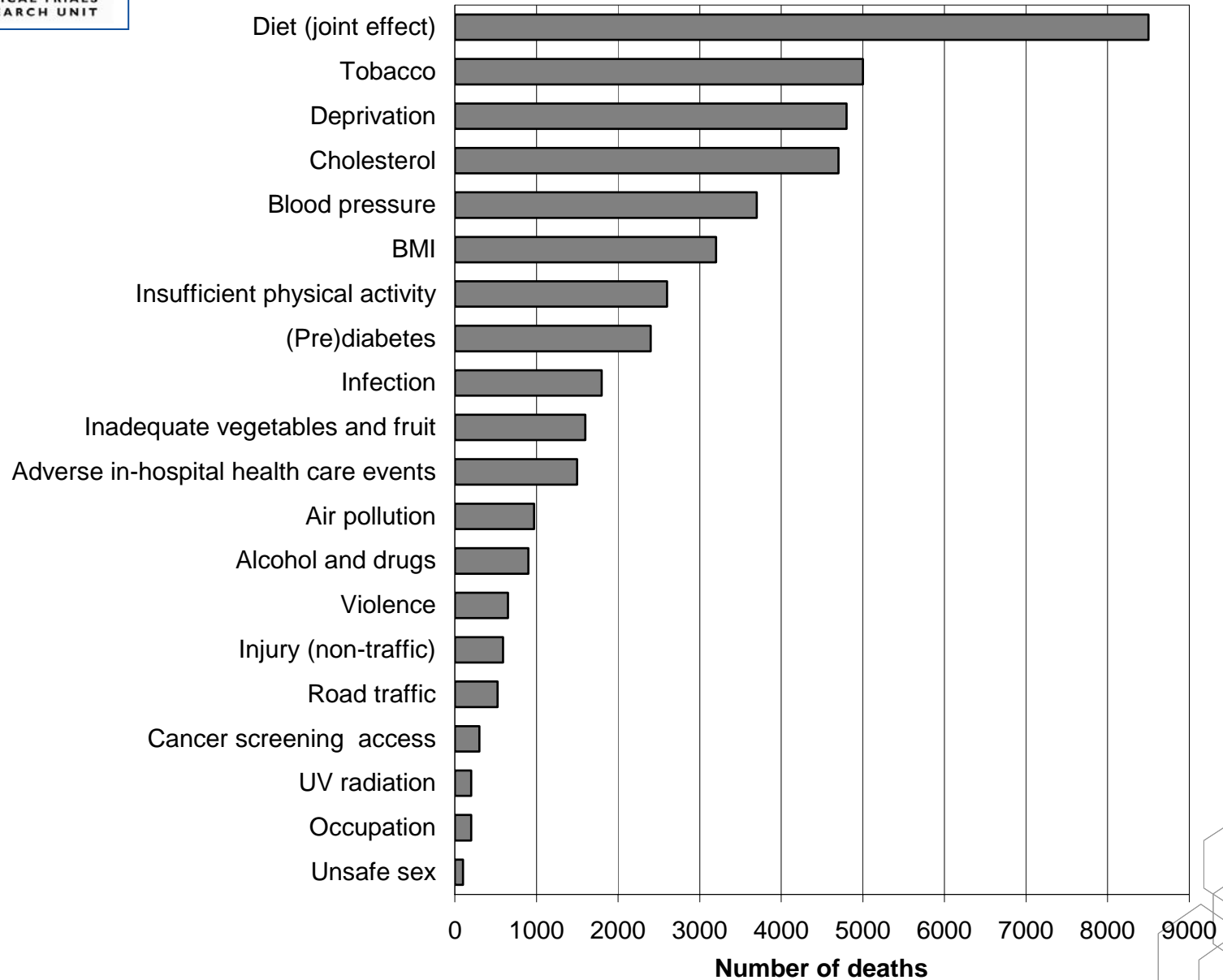


Proportion of deaths due to high BMI





Top 20 causes of death, by risk factor, New Zealand, 1997





Summary

- High BMI is a major modifiable cause of premature death in New Zealand
- Intervention policies with only modest effects on slowing increase in mean population BMI could prevent hundred of deaths annually





Acknowledgements

- **Public Health Intelligence:**
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