

Diet and the burden of disease

Jim Mann

National
Science
Challenges

HEALTHIER
LIVES

He Oranga
Hauora

bode³

DIET 
Dietary Interventions:
Evidence & Translation

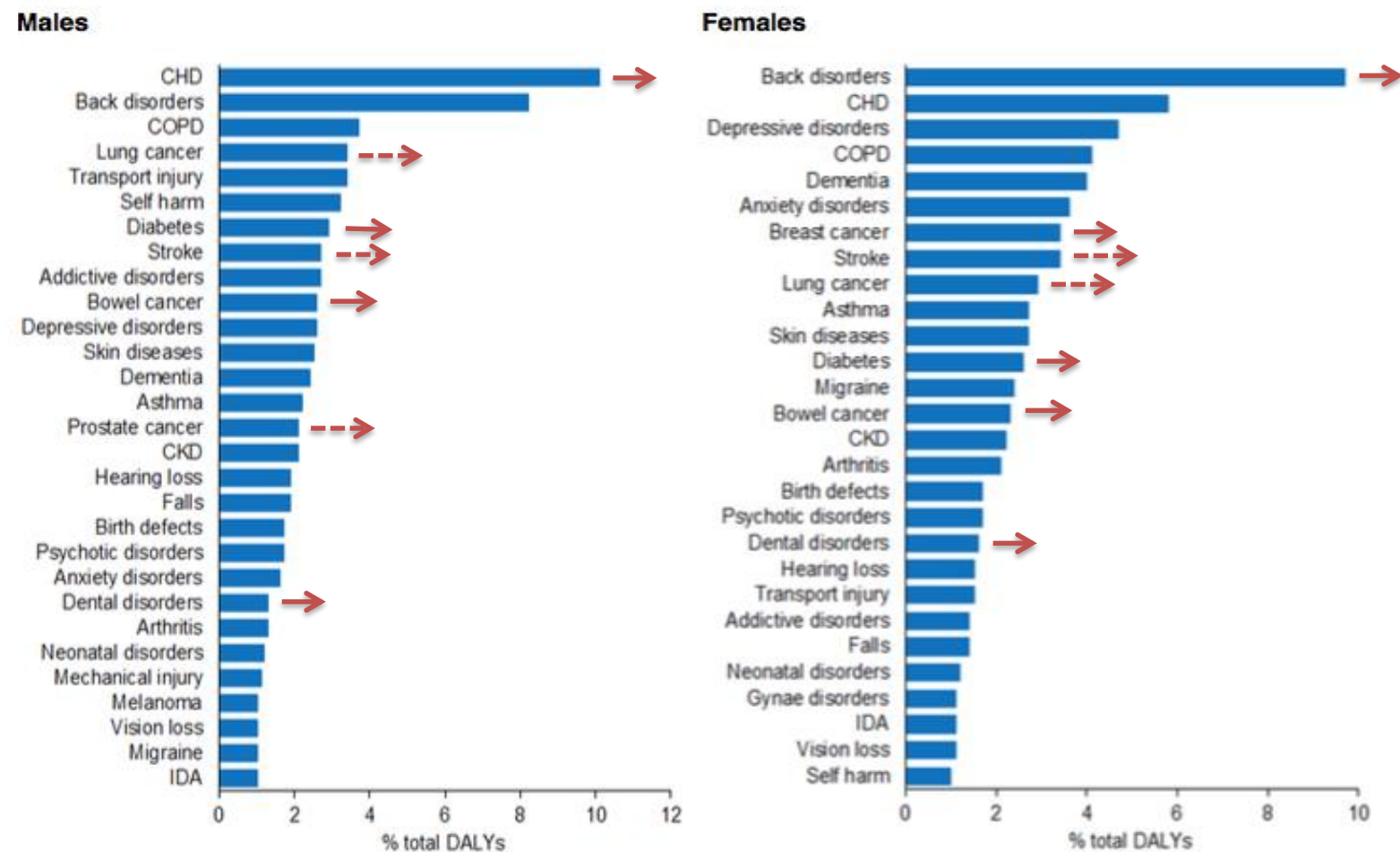


INFORMAS

Benchmarking food environments



Contribution of leading major specific conditions to health loss (% total DALYs), by gender, 2013



World
Cancer
Research
Fund



American
Institute for
Cancer
Research

CUP Continuous
Update
Project

Analysing research on cancer
prevention and survival

Diet, Nutrition, Physical Activity and Cancer: a Global Perspective

A summary of the Third Expert Report



World
Cancer
Research
Fund International

World
Cancer
Research
Fund UK

Wereld
Kanker
Onderzoek
Fonds

World
Cancer
Research
Fund

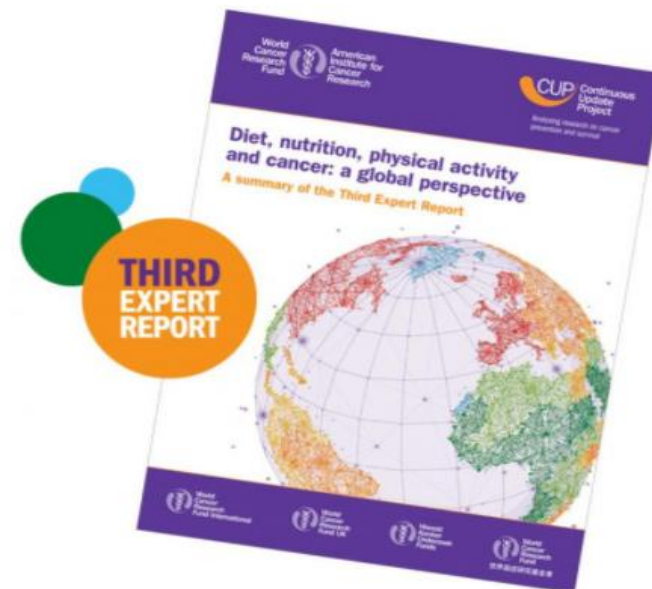
世界癌症研究基金會



1997



2007



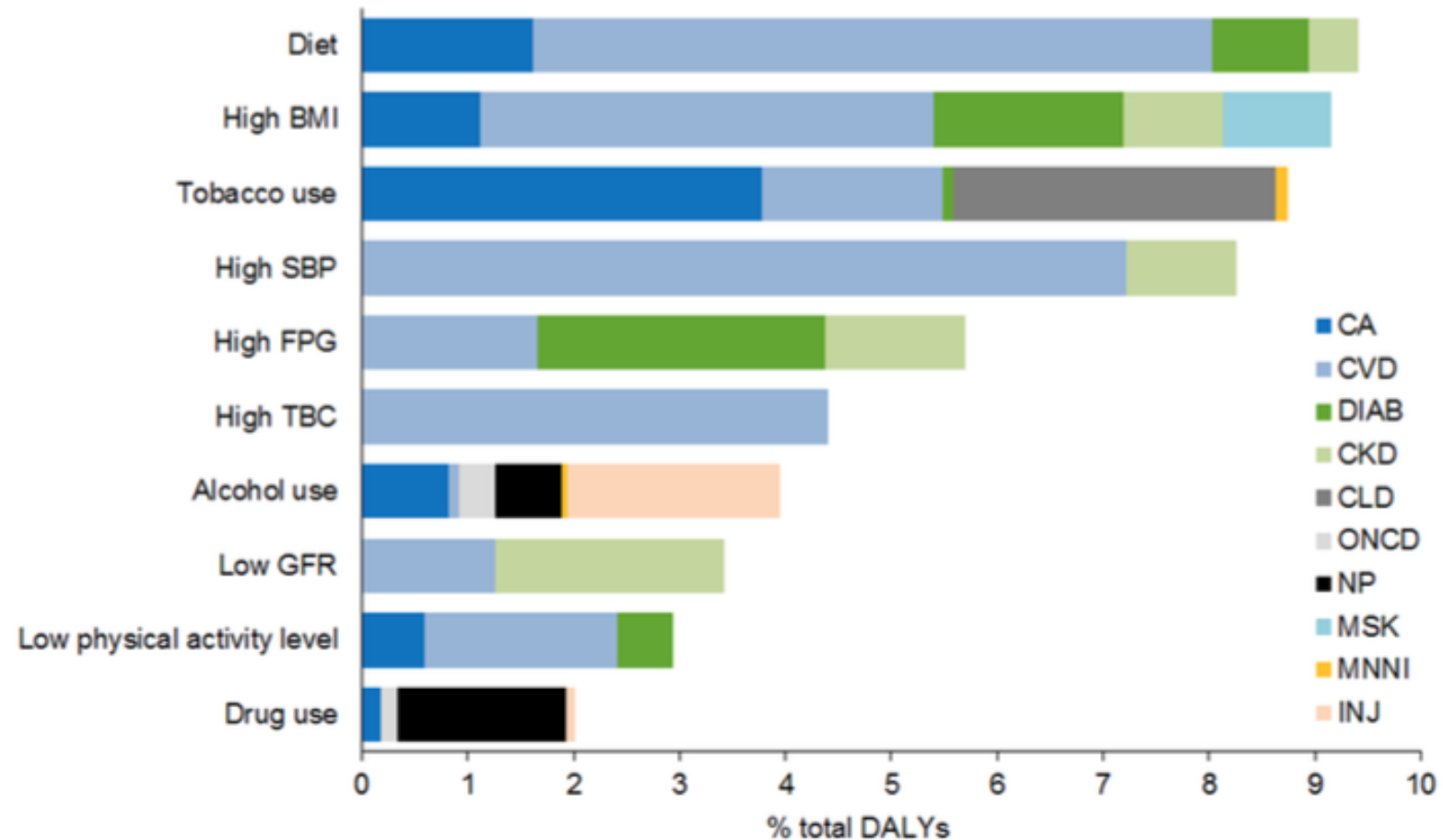
WCRF/AICR. *Diet, Nutrition, Physical Activity and Cancer: a Global Perspective.*
Continuous Update Project Expert Report, 2018

Body fatness and Cancer

Adapted from: WCRF/AICR. Diet, Nutrition, Physical Activity and Cancer: a Global Perspective. Continuous Update Project Expert Report, 2018

Convincing	Probable
Oesophagus	Mouth, pharynx & larynx
Pancreas	Stomach
Liver	Gall bladder
Colorectum	Ovary
Breast (postmenopausal)	Prostate
Endometrium	
Kidney	

Health losses caused by selected risk factors (% total DALYs), 2013

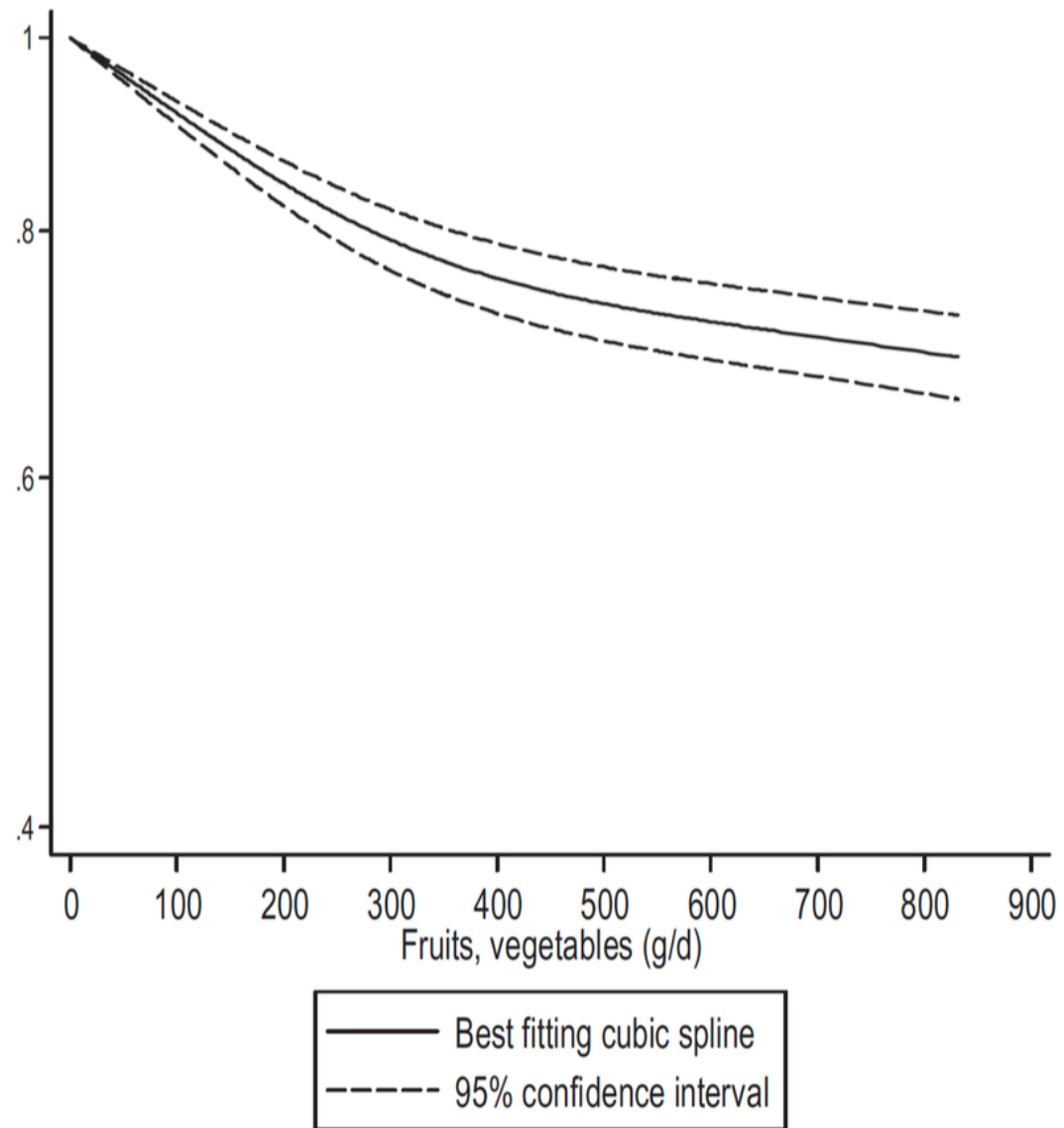


Contributors to 'diet'

Low consumption of:	High consumption of:
Fruit & vegetables	Sodium
Whole grains	Red meat
Fibre	Trans fat
Total PUFA	Sugar
ω 3 PUFA	
Calcium	



Fruits and vegetables and all-cause mortality, nonlinear dose-response



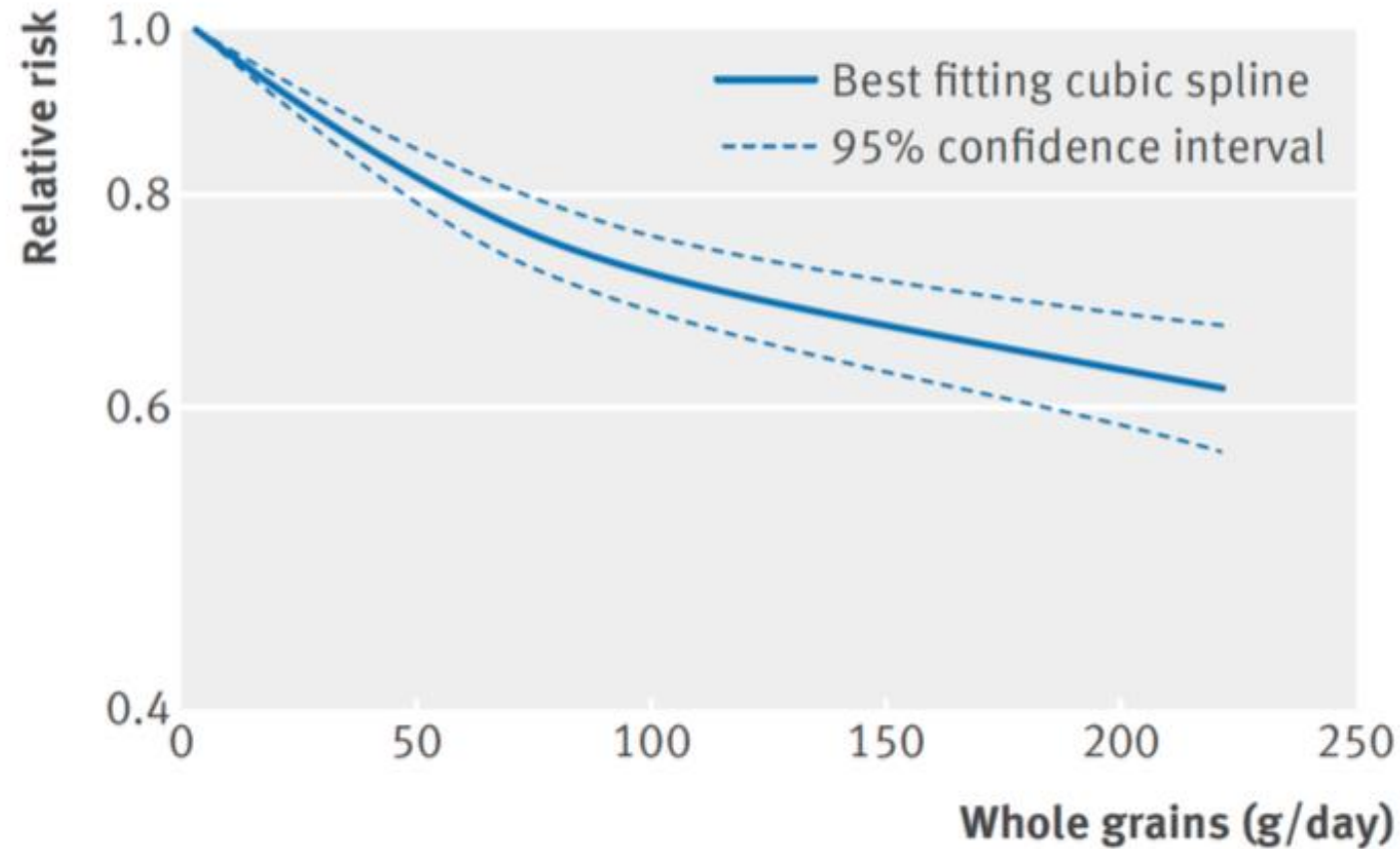
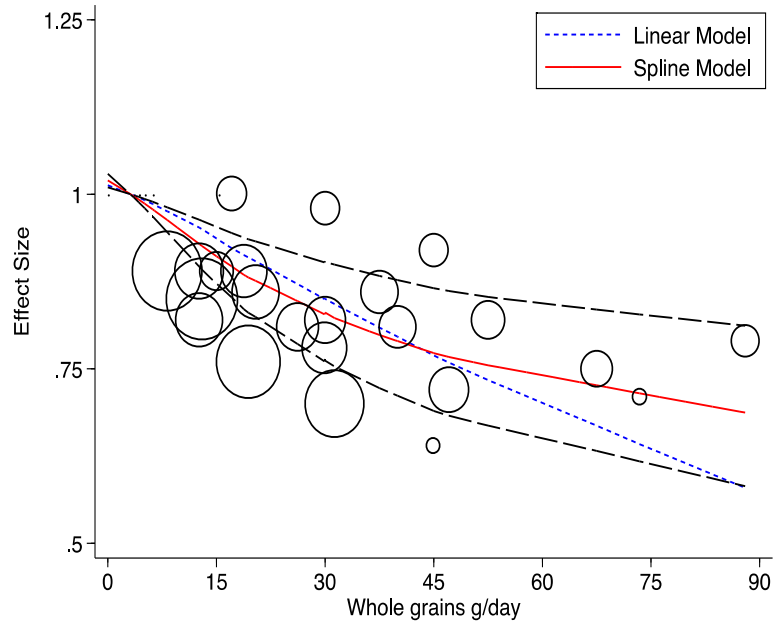
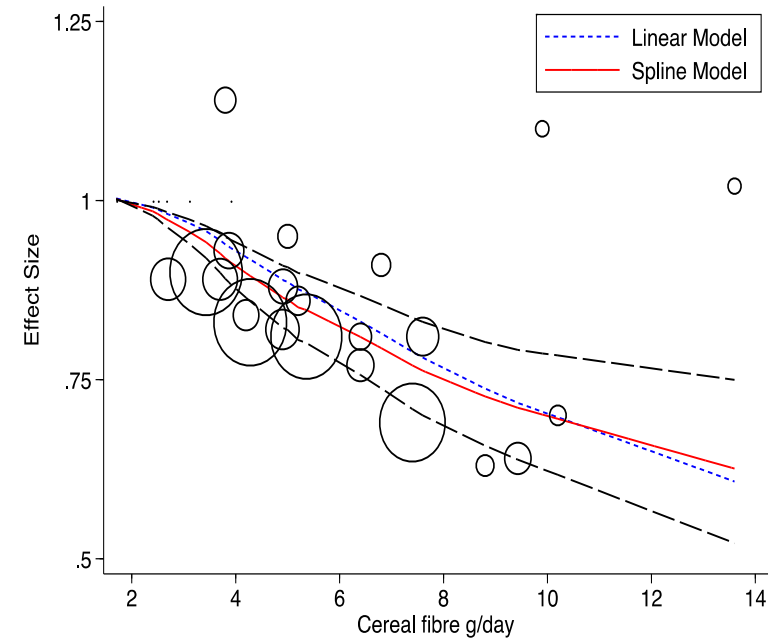


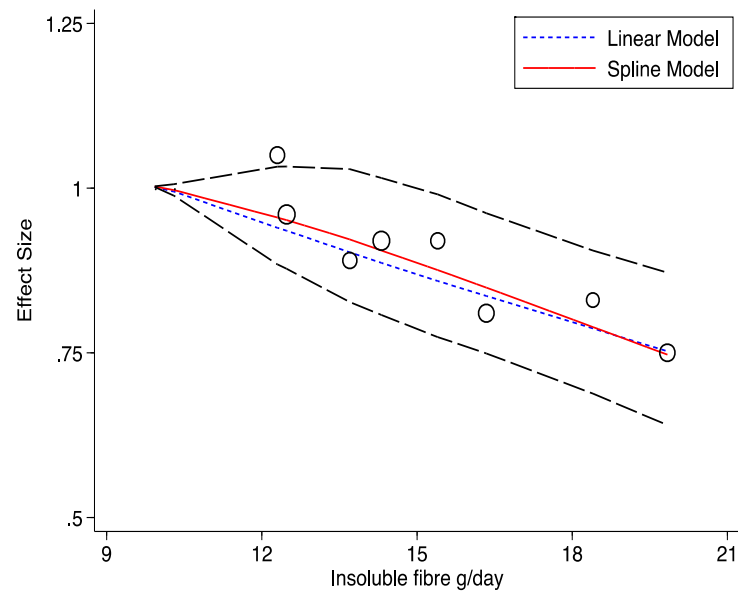
Fig 2 | Forest plot for consumption of whole grains (per 90 g/day) and risk of coronary heart disease, with graph illustrating non-linear response



Whole grains



Cereal fibre



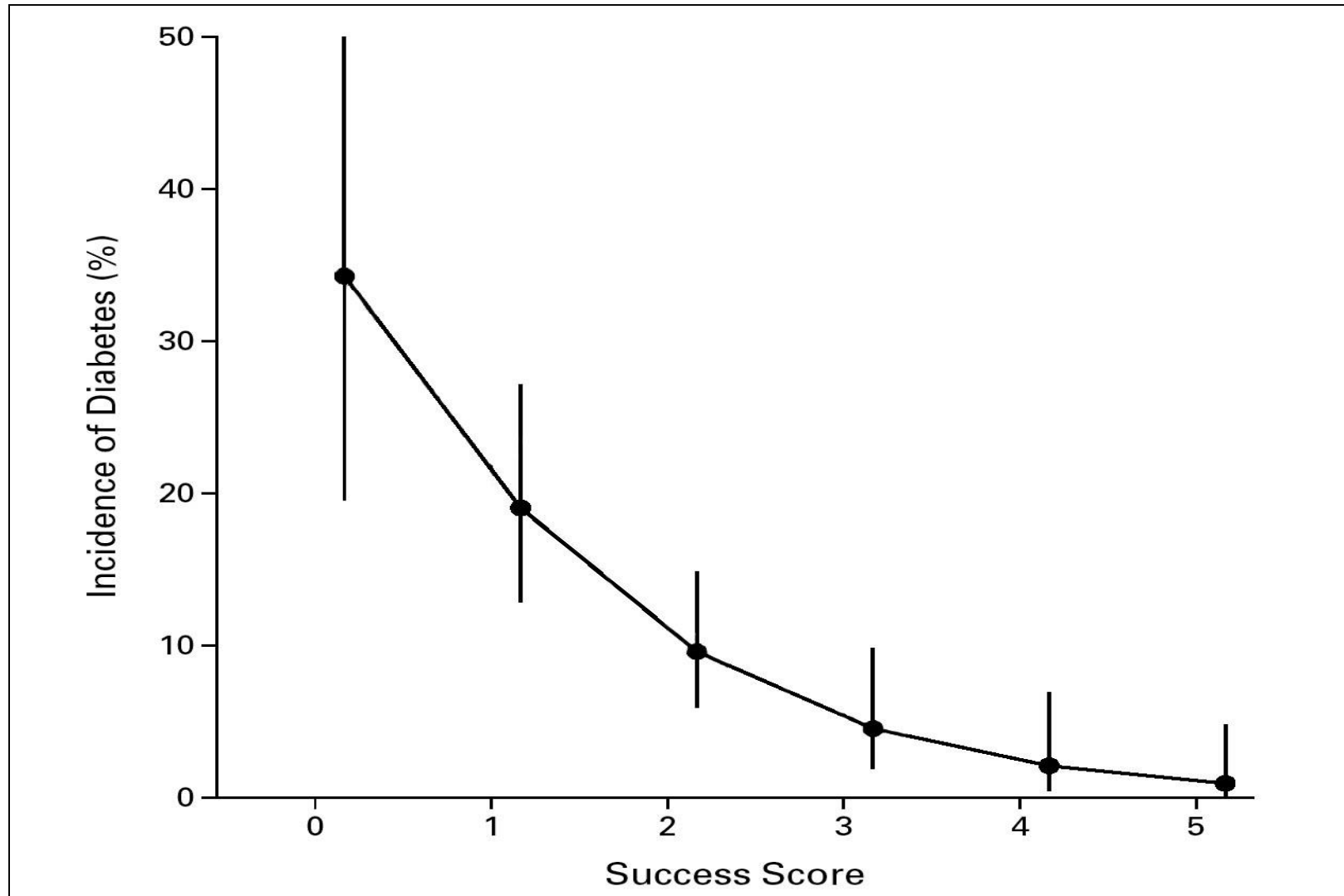
Insoluble fibre

PREVENTION OF TYPE 2 DIABETES MELLITUS BY CHANGES IN LIFESTYLE AMONG SUBJECTS WITH IMPAIRED GLUCOSE TOLERANCE

JAAKKO TUOMILEHTO, M.D., PH.D., JAANA LINDSTRÖM, M.S., JOHAN G. ERIKSSON, M.D., PH.D., TIMO T. VALLE, M.D.,
HELENA HÄMÄLÄINEN, M.D., PH.D., PIRJO ILANNE-PARIKKA, M.D., SIRKKA KEINÄNEN-KIUKAANNIEMI, M.D., PH.D.,
MAURI LAAKSO, M.D., ANNE LOUHERANTA, M.S., MERJA RASTAS, M.S., VIRPI SALMINEN, M.S.,
AND MATTI UUSITUPA, M.D., PH.D., FOR THE FINNISH DIABETES PREVENTION STUDY GROUP

Weight reduction	$\geq 5\%$
Moderate intensity physical activity	≥ 30 m/day
Dietary fat	$< 30\%$ TE
Dietary saturated fat	$< 10\%$ TE
Dietary fibre	$\geq 15\text{g}/100\text{kcal}$

Finnish Diabetes Prevention Study: Incidence of diabetes during follow-up

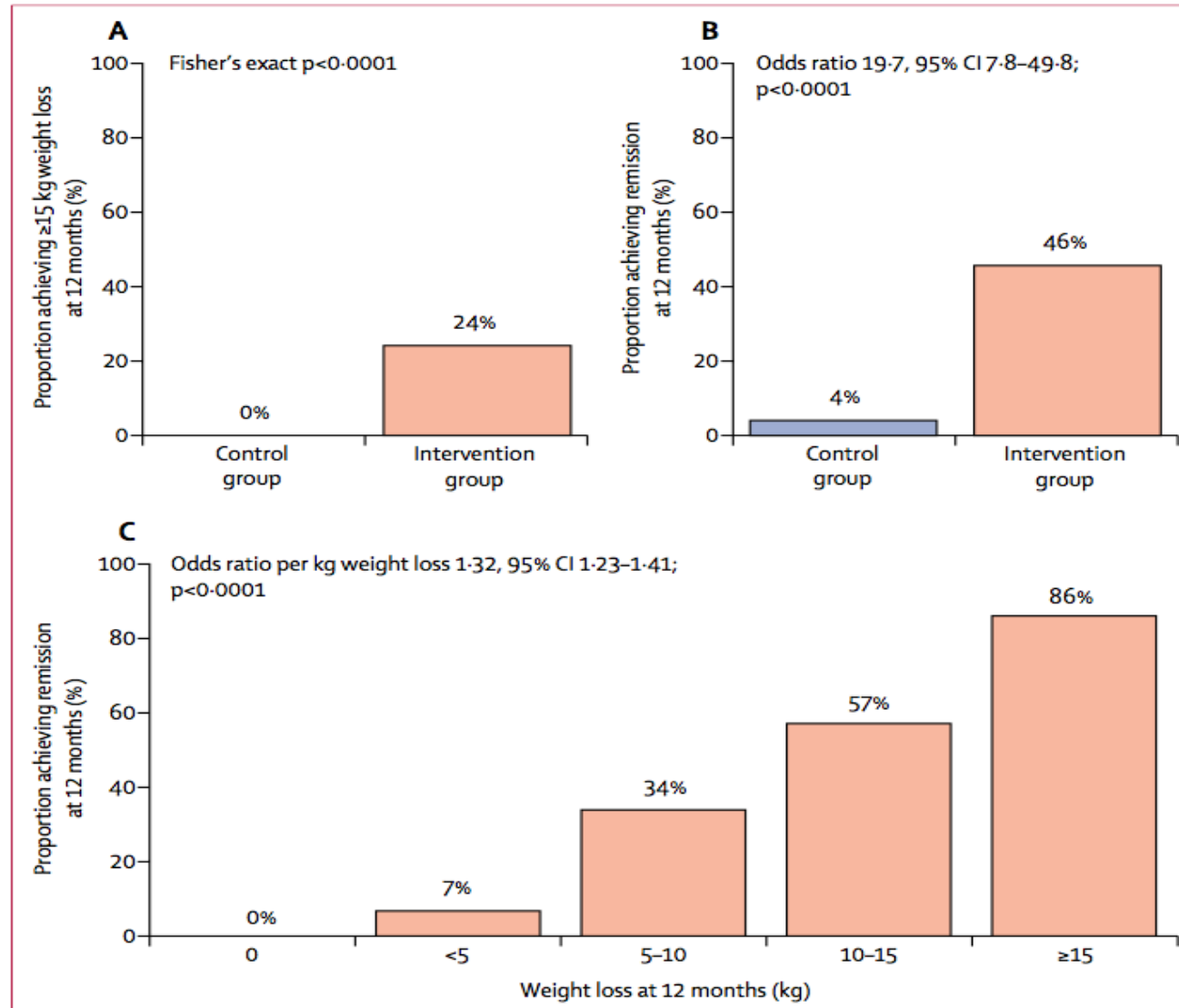


Primary care-led weight management for remission of type 2 diabetes (DiRECT): an open-label, cluster-randomised trial

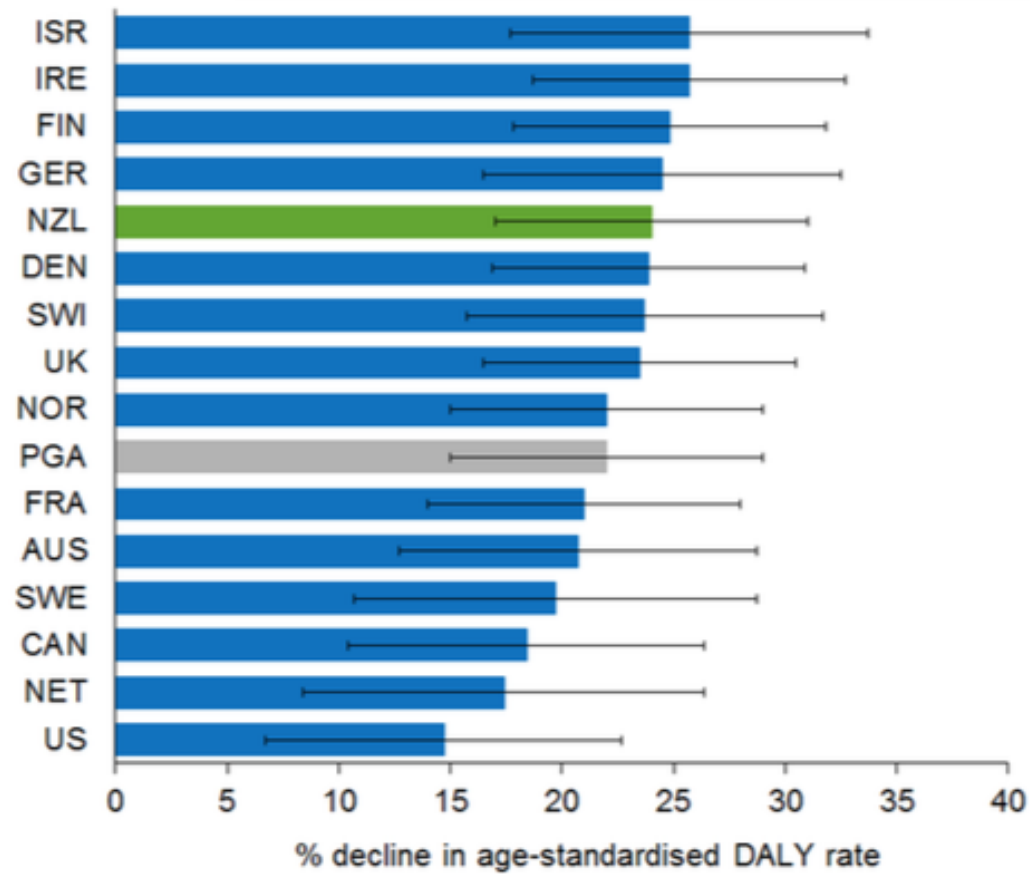
Michael E J Lean*, Wilma S Leslie, Alison C Barnes, Naomi Brosnahan, George Thom, Louise McCombie, Carl Peters, Sviatlana Zhyzhneuskaya, Ahmad Al-Mrabeh, Kieren G Hollingsworth, Angela M Rodrigues, Lucia Rehackova, Ashley J Adamson, Falko F Sniehotta, John C Mathers, Hazel M Ross, Yvonne McIlvenna, Renae Stefanetti, Michael Trenell, Paul Welsh, Sharon Kean, Ian Ford, Alex McConnachie, Naveed Sattar, Roy Taylor*

Lean et al, *Lancet*, 2018

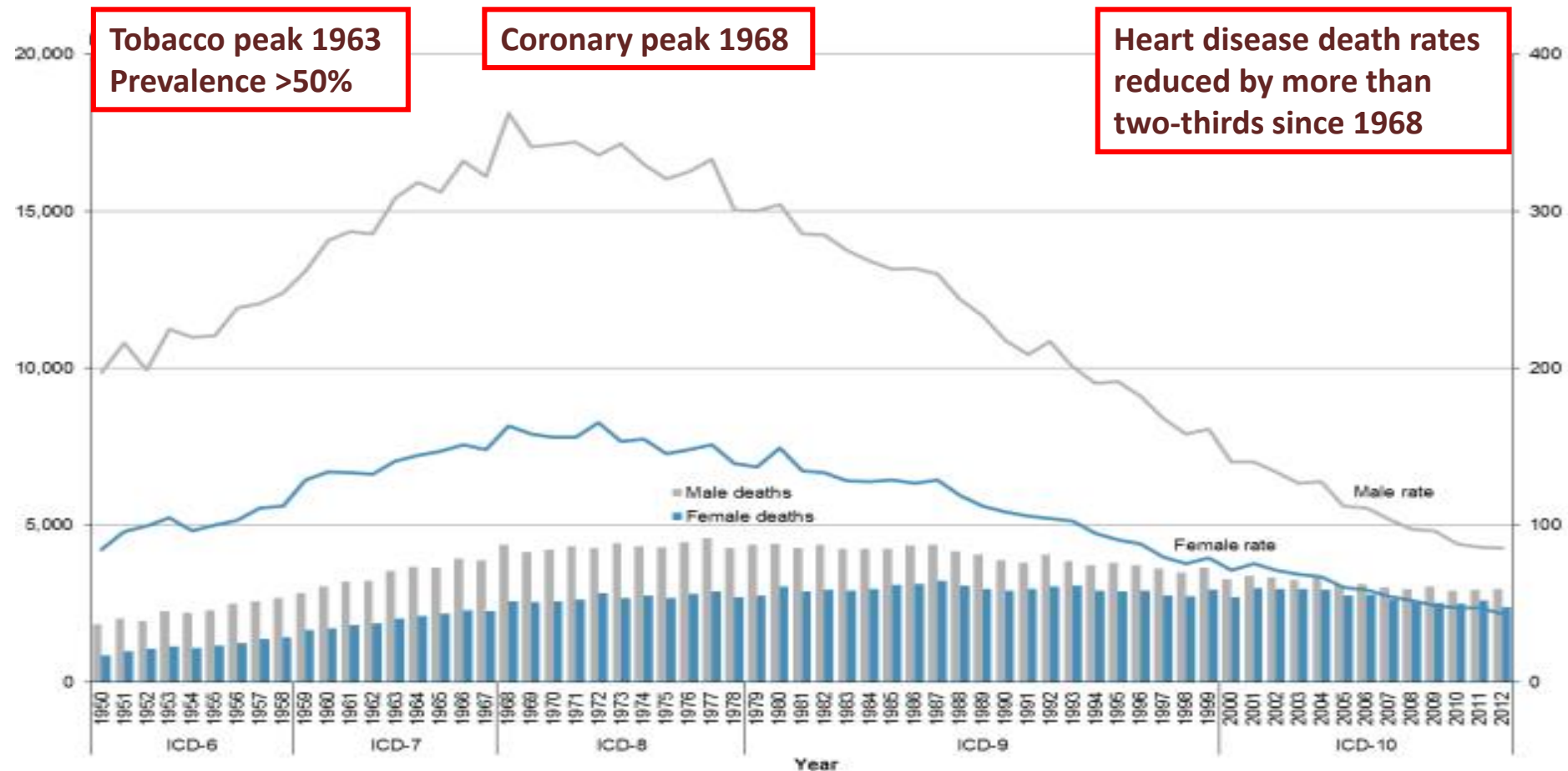
Primary outcomes and remission of diabetes in relation to weight loss at 12 months



Percentage change in age-standardised, all-cause DALY rate, by peer group country, 1990-2013

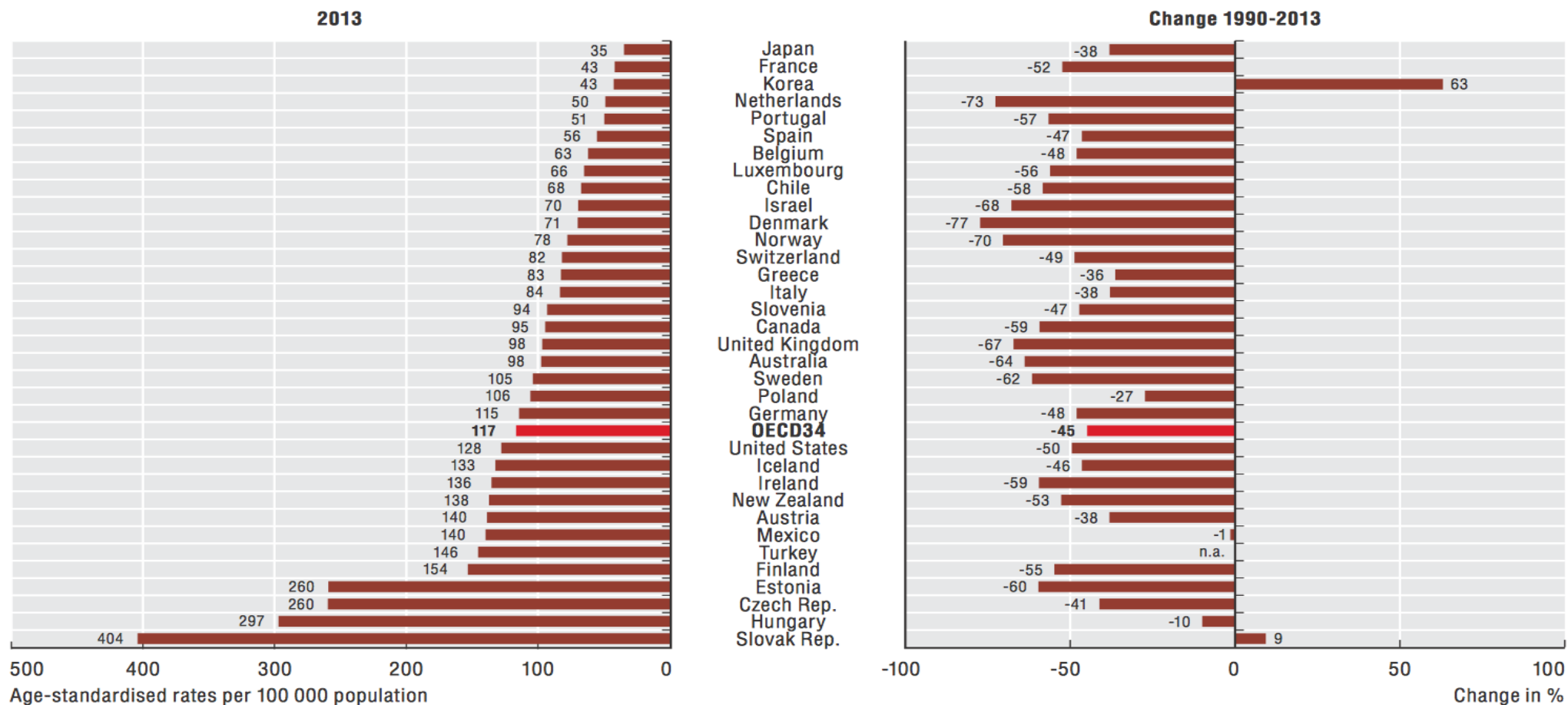


Numbers and age-standardised mortality rates from ischaemic heart disease, by sex, 1950–2012




Note: rates per 100,000 population, age-standardised to WHO World Standard Population.

IHD mortality has reduced in NZ but..... !

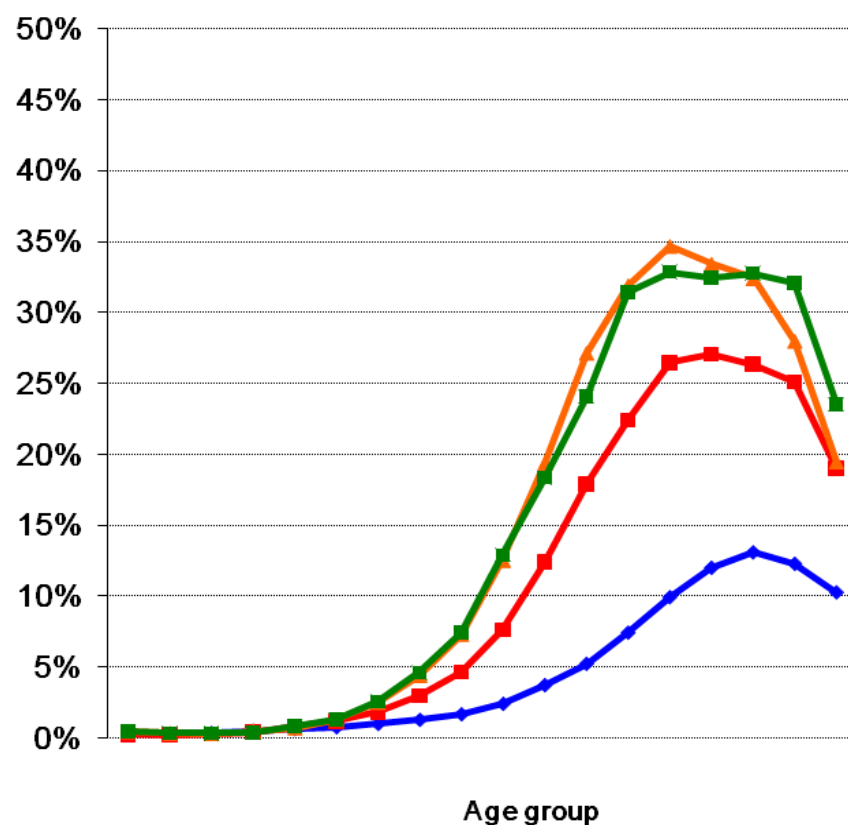


Source: OECD Health Statistics 2015, <http://dx.doi.org/10.1787/health-data-en>.

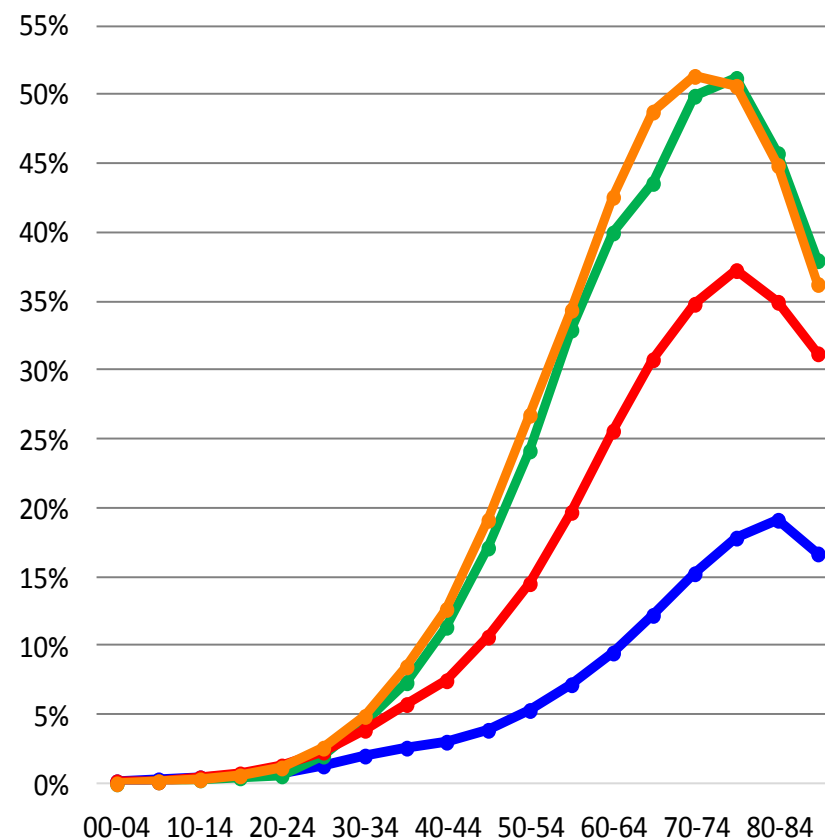
StatLink  <http://dx.doi.org/10.1787/888933280741>

Diabetes prevalence: 2005 and 2015

New Zealand Diabetes Prevalence Data *as at* December 2005

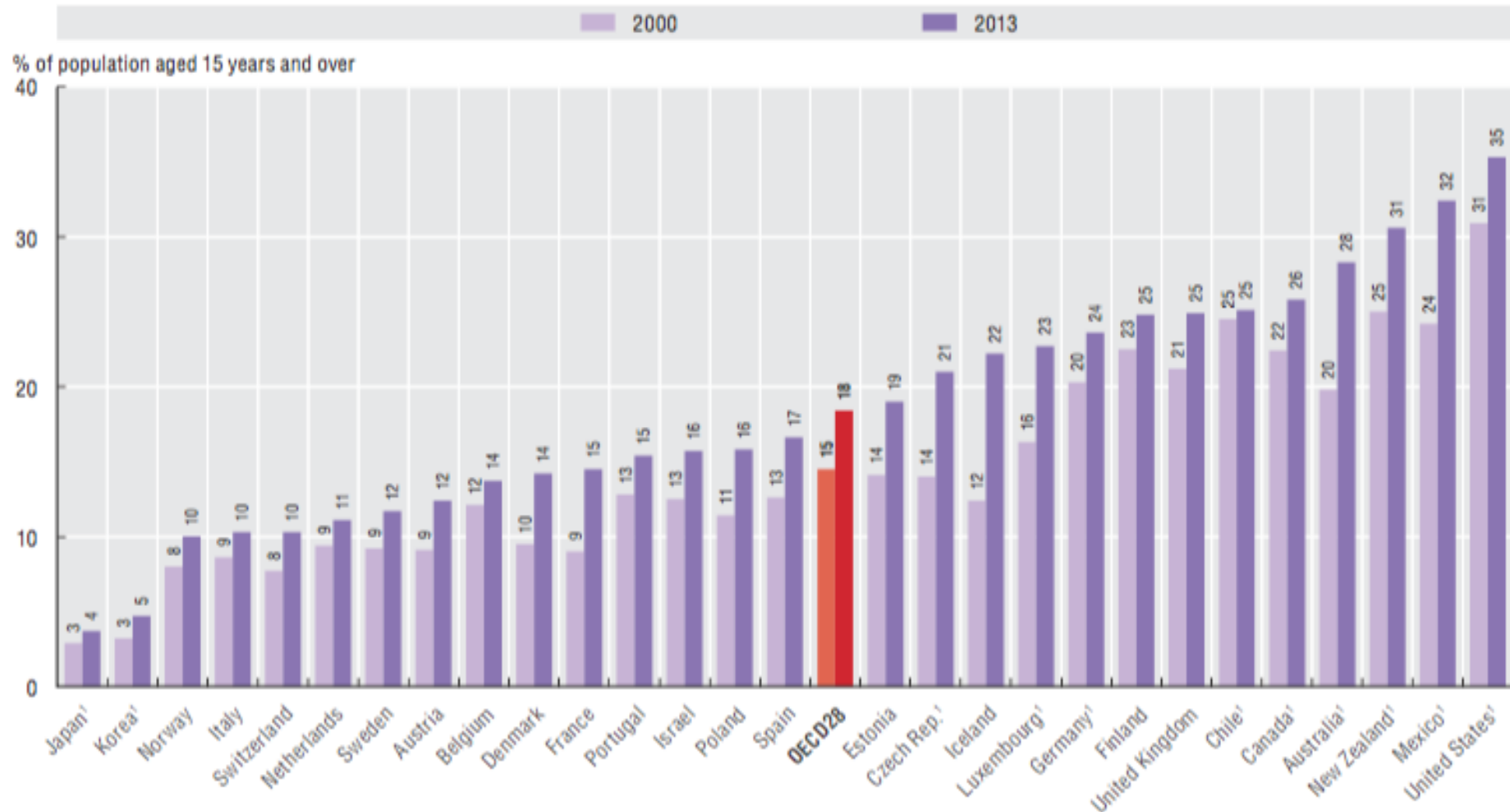


New Zealand Diabetes Prevalence Data *as at* December 2015



European/Other Indian Māori Pacific people


4.8. Increasing obesity among adults in OECD countries, 2000 and 2013 (or nearest years)



1. Data are based on measurements rather than self-reported height and weight.

Source: OECD Health Statistics 2015, <http://dx.doi.org/10.1787/health-data-en>.

Information on data for Israel: <http://oe.cd/israel-disclaimer>

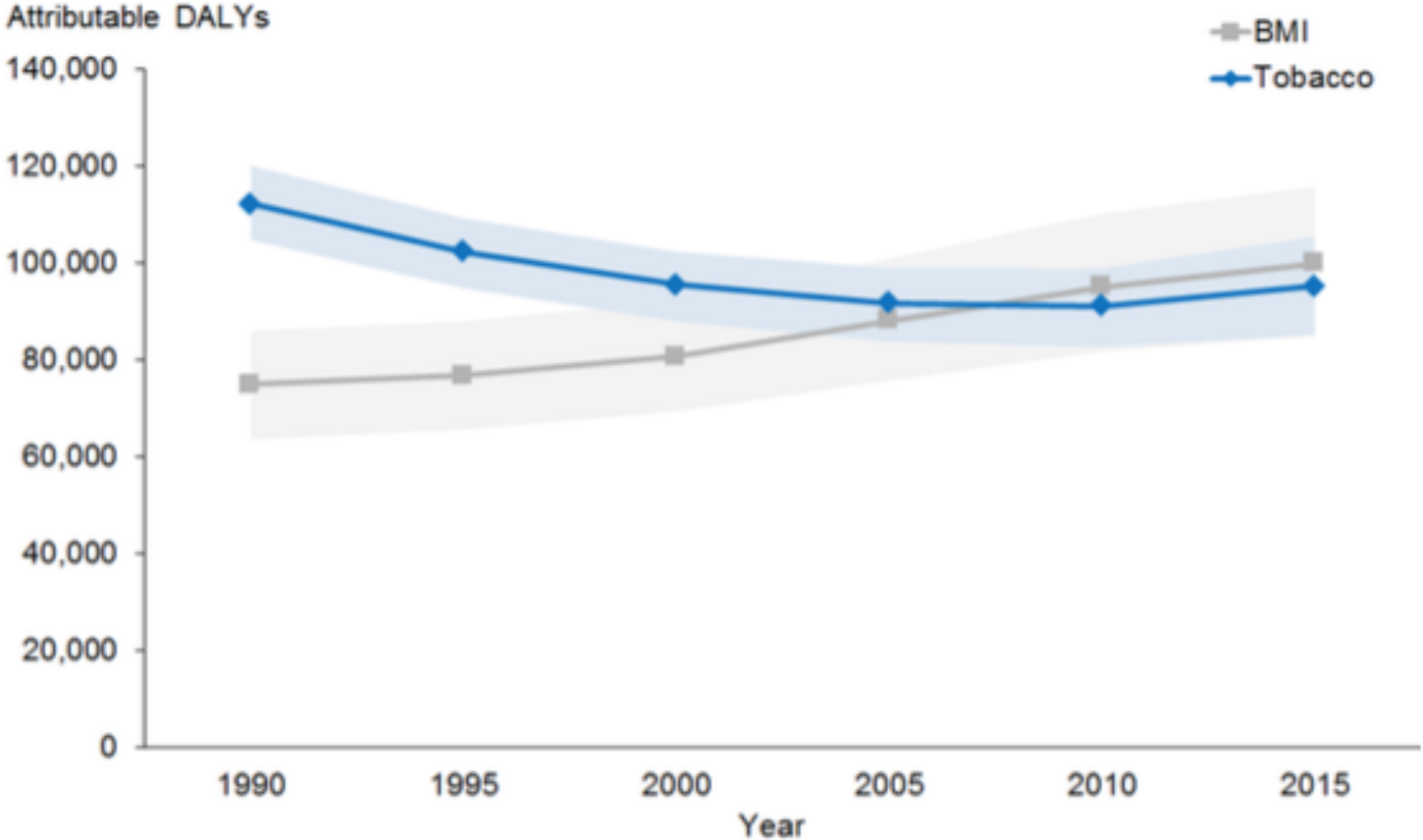
StatLink  <http://dx.doi.org/10.1787/888933280857>

What needs to be done to prevent obesity and NCDs?



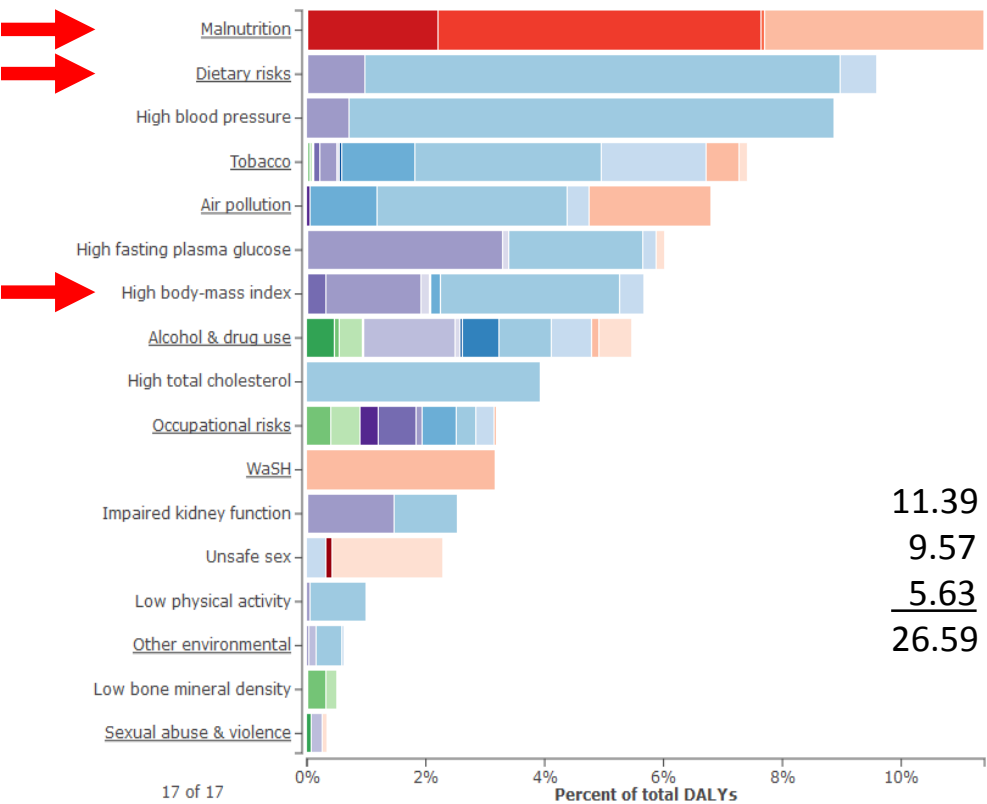
Figure 21: Health loss attributable to BMI and tobacco use, 1990–2015

(a) Counts (attributable DALYs)



Malnutrition in all its forms – largest contributor to burden of disease

Global Burden of Disease



NZ Burden of Disease

