Dr Gerry Devlin

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National Heart Foundation

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Heart Foundation

FULLY BOOKED

Saturday, August 13, 2016 (Room 3)

8:30 - 9:25 WS #72: Controversies in Cardiovascular Disease

9:35 - 10:30 WS #82: Controversies in Cardiovascular Disease (Repeated)

CONTROVERSIES IN CARDIOLOGY

Risk Assessment

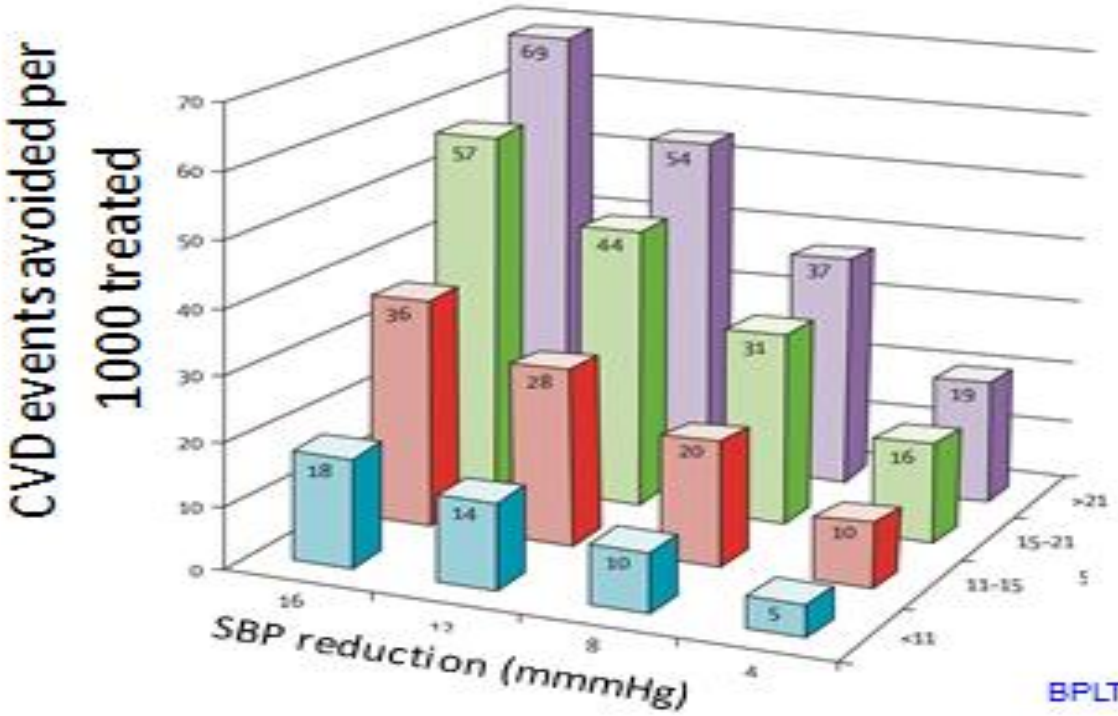
Risk management

Secondary prevention

Will

- TC 5
- LDL 3.1
- HDL 1.7
- TC/HDL 4.4

CVD events prevented per 1000 treated by baseline combined risk and extent of systolic blood pressure-lowering



BPLTTC. Lancet 2014; 384: 591–98

Will

- 52
- No FMH
- Non smoker
- II DM
- BP 136/80
- WC 100
- BMI 30
- GFR >60
- ACR 0.6
- TC 5 LDL 3.1 HDL 1.7
- TC/HDL 4.4
- HbA1c 44

Will

- CVRA 14%
- SDM conversation
- Elects to make lifestyle changes

- Coronary calcium scores
- hs CRP
- Fibrinogen
- Homocysteine
- lpA2
- Genetic markers
- Carotid USS
- ABI
- Arterial stiffness (PWV)

Risk model refinement recommendations

- Use of non-invasive imaging tools to detect subclinical atherosclerosis is not recommended for CVD risk assessment in the primary prevention setting. Utility for selected groups of individuals requires further study.
- Currently available novel biomarkers do not replace or enhance established methods for CVD risk assessment in the primary prevention setting, but studies are ongoing.
- Common genetic variants associated with blood lipids and coronary events currently perform less well than phenotype based methods for risk assessment and, except for screening for FH, are not recommended for CVD risk assessment in the primary prevention setting.

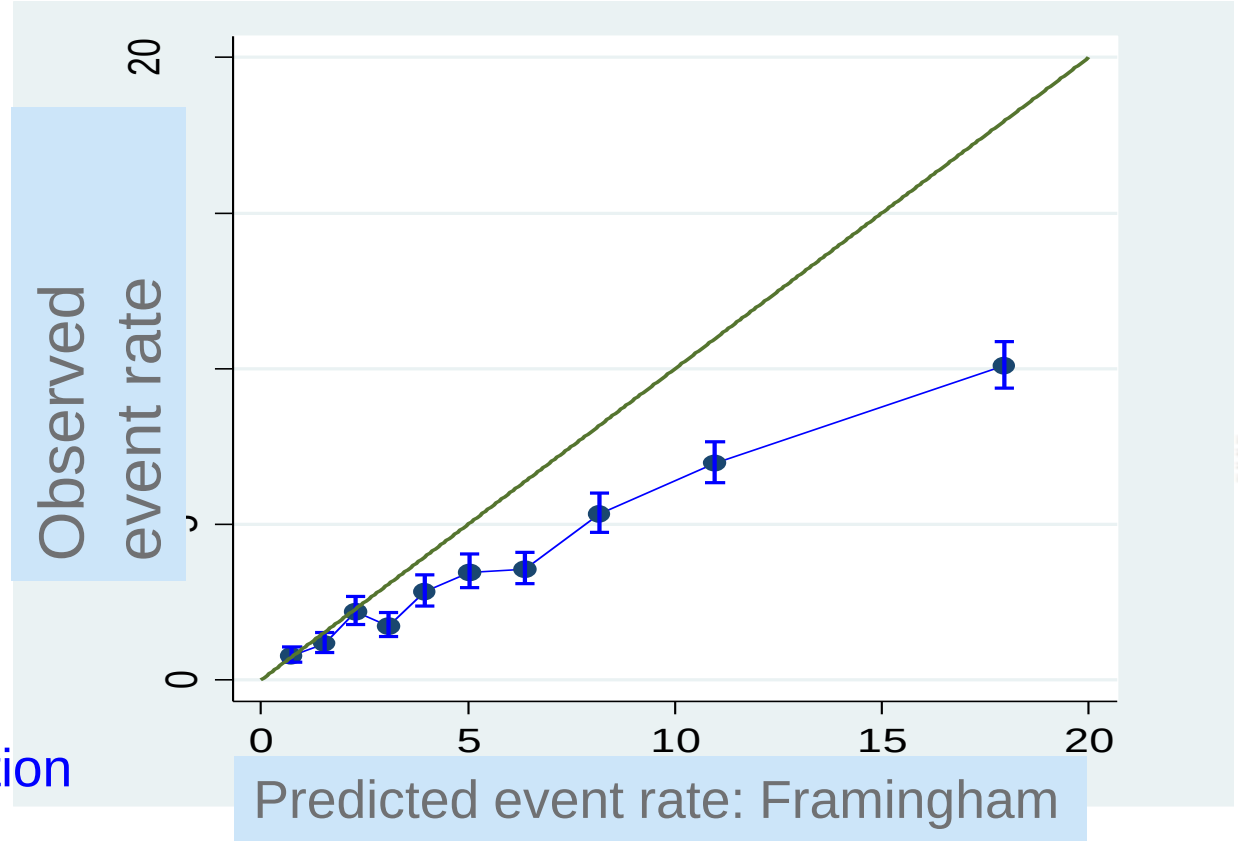
ABI.

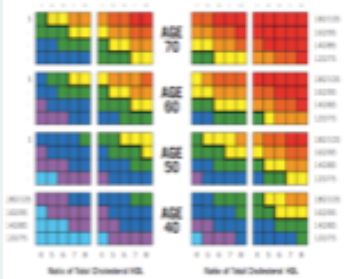
ABI = ankle brachial blood pressure index; BMI = body mass index; CVD = cardiovascular disease; CT = computed tomography.

Piepoli, M. F., et al. (2016). "2016 European Guidelines on cardiovascular disease prevention in clinical practice."

Board, J. B. S. (2014). "Joint British Societies' consensus recommendations for the prevention of cardiovascular disease (JBS3)." Heart **100 Suppl 2: ii1-ii67**.

Observed vs Predicted risk: Framingham score

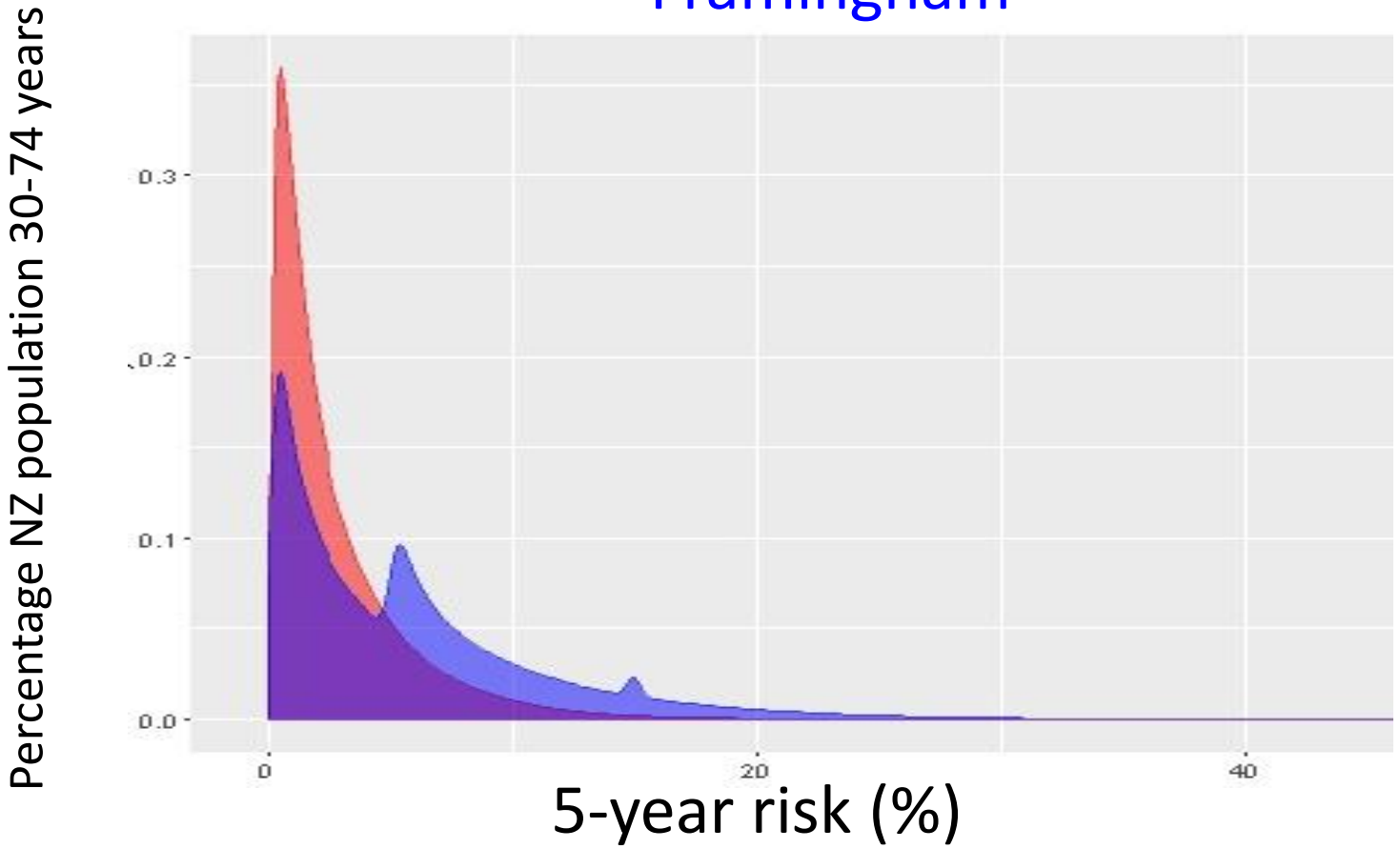




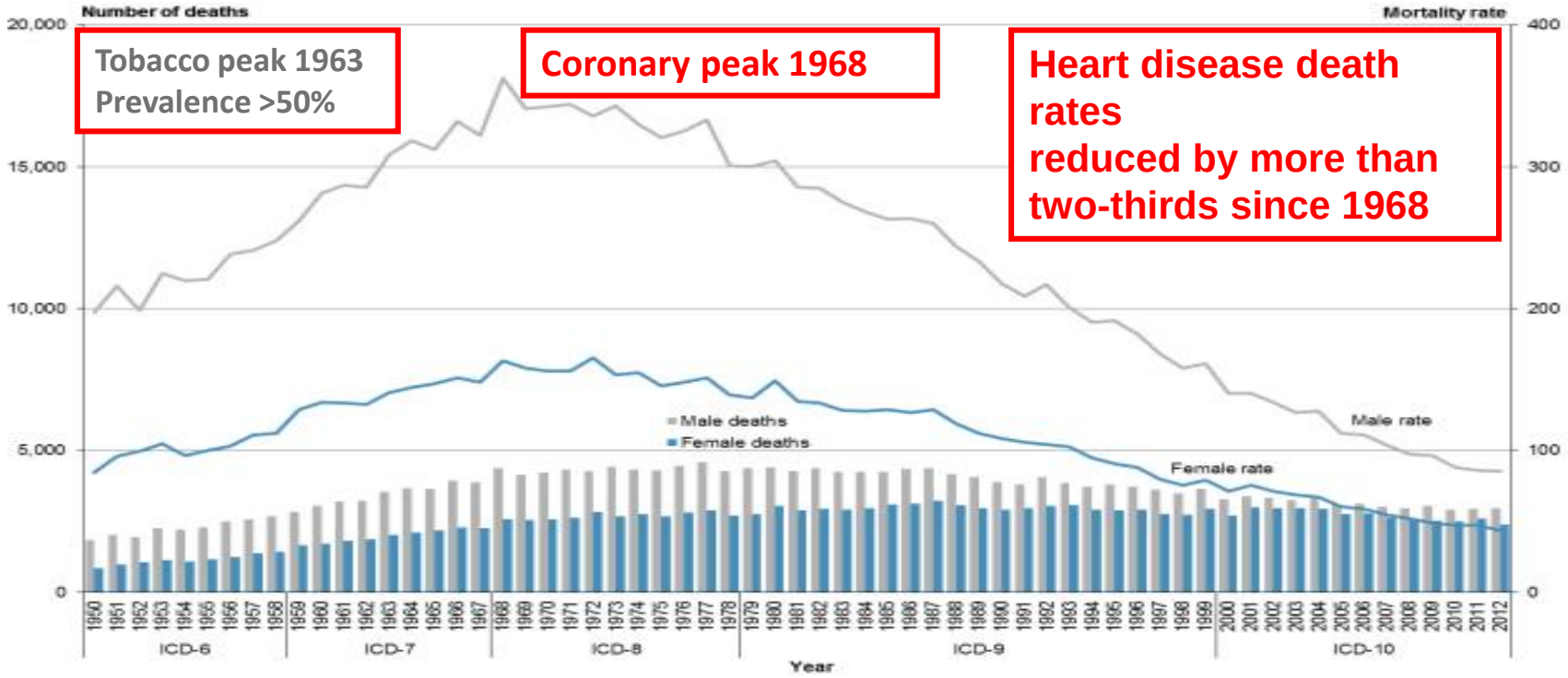
1° prevention score

From Rod Jackson : PREDICT

Density plot of 5-yr CVD risk: PREDICT vs. Framingham



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

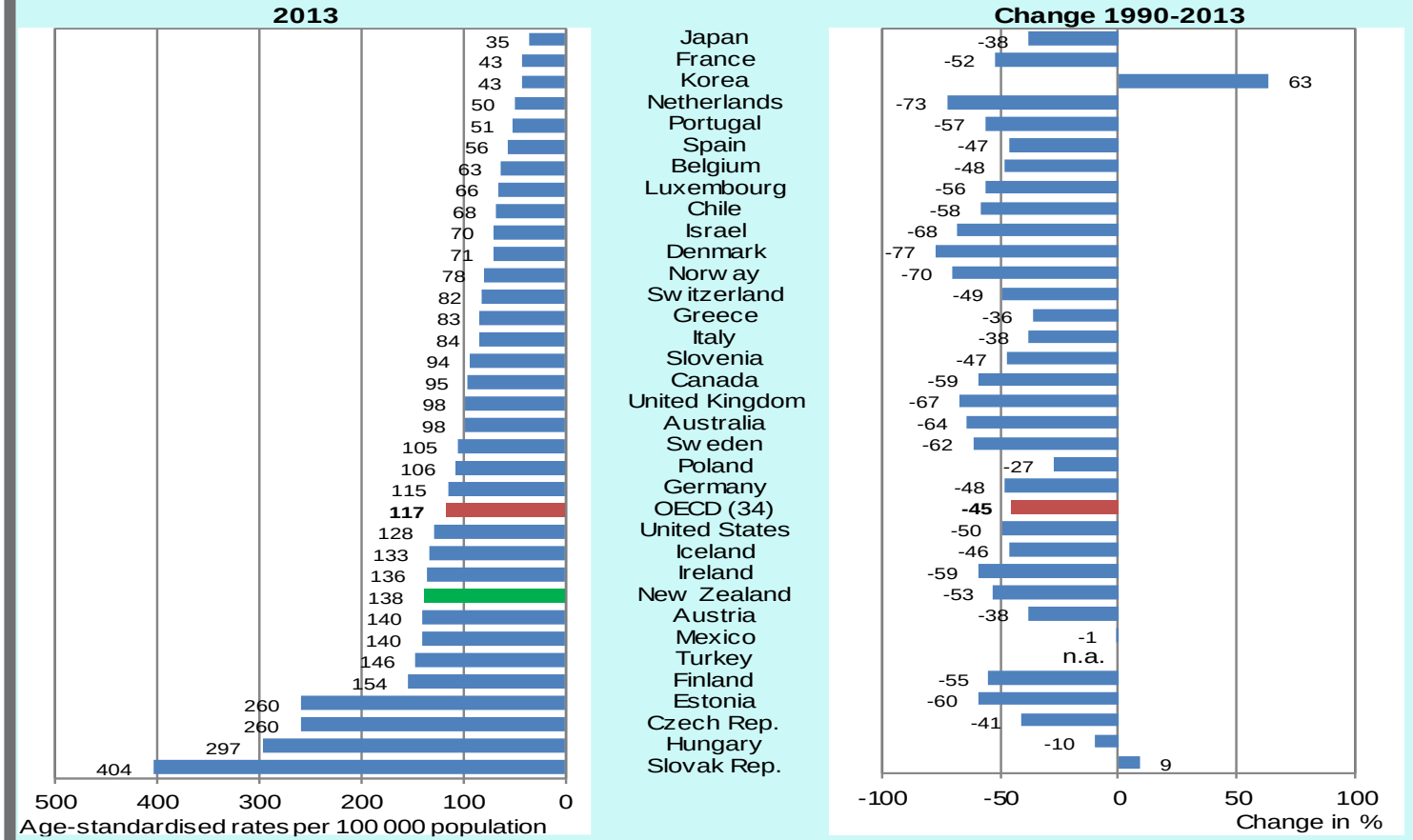


Note: rates per 100,000 population, age-standardised to WHO World Standard Population.

Changes to Risk Assessment

- Gradually overestimating
- Opportunity to ‘use NZ made’
- Everybody is at slightly lower risk because rates have fallen
- This does not mean ‘job done’

3.6. **Ischemic heart disease mortality, 2013 and change 1990-2013 (or nearest years)**



Source: OECD Health Statistics 2015 , http://dx.doi.org/10.1787/health-data-en (extracted from WHO).

Will

- CVRA 8%
- Does this change how we approach Will?

Cochrane 2013

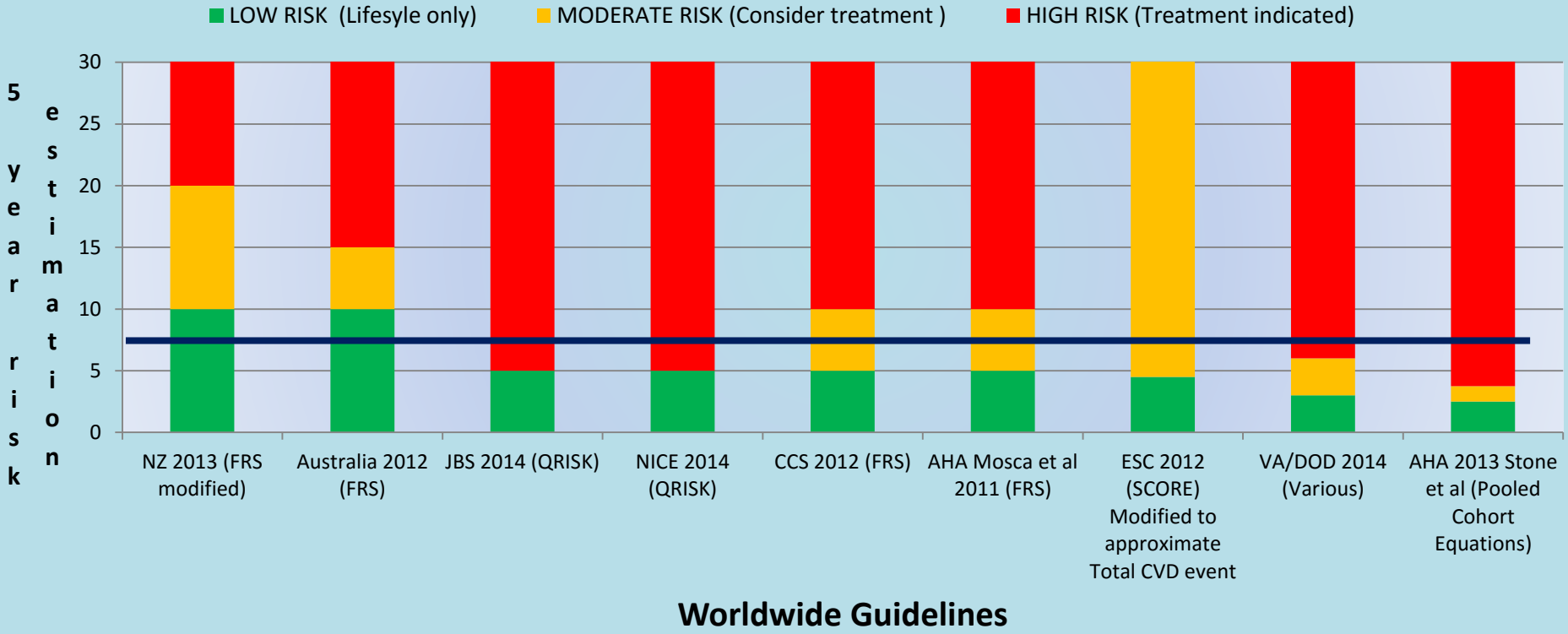
Taylor, F., et al. (2013) Statins for the primary prevention of cardiovascular disease.

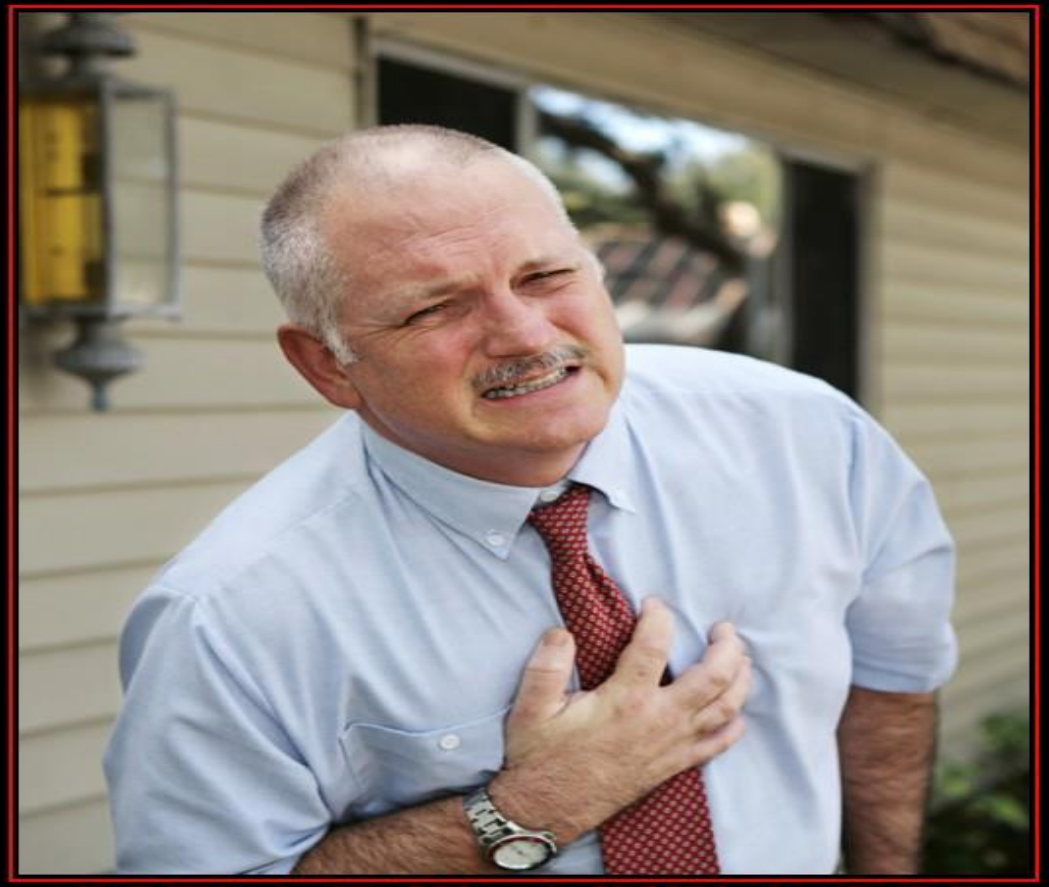
“benefits from statins at low levels of CVD risk “

<5 and 5-10 % 5 yr risk levels have NNTs “well within the range considered worthwhile in primary prevention”.

Comparison of worldwide guideline thresholds.

Risk estimations converted to 5 yr risk interval.





HEART ATTACK

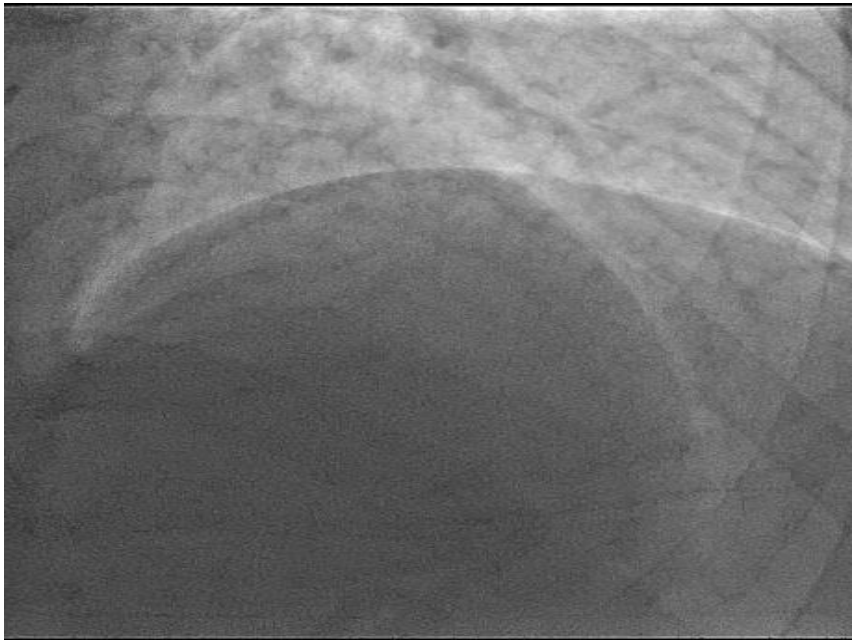
Walk It Off You Pansy

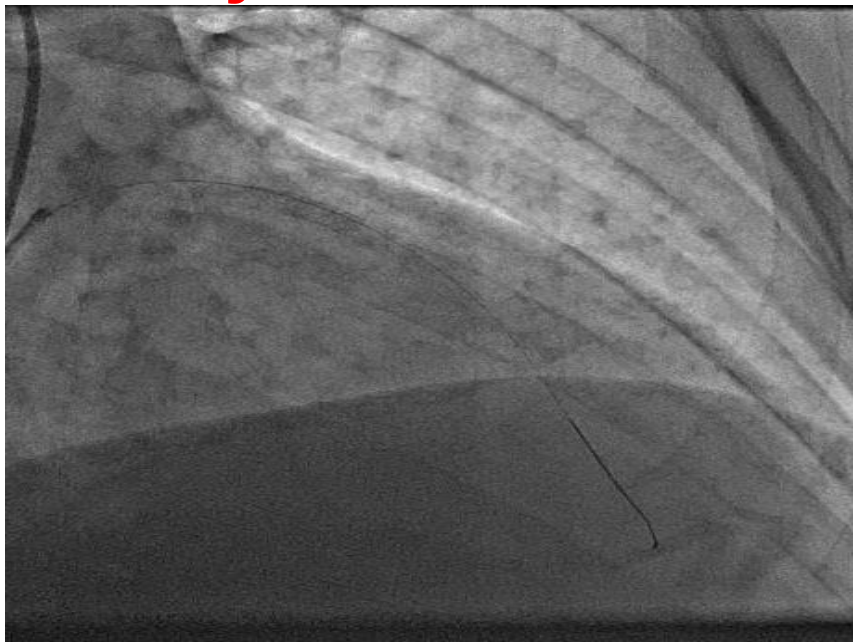
Will

- Develops chest pain

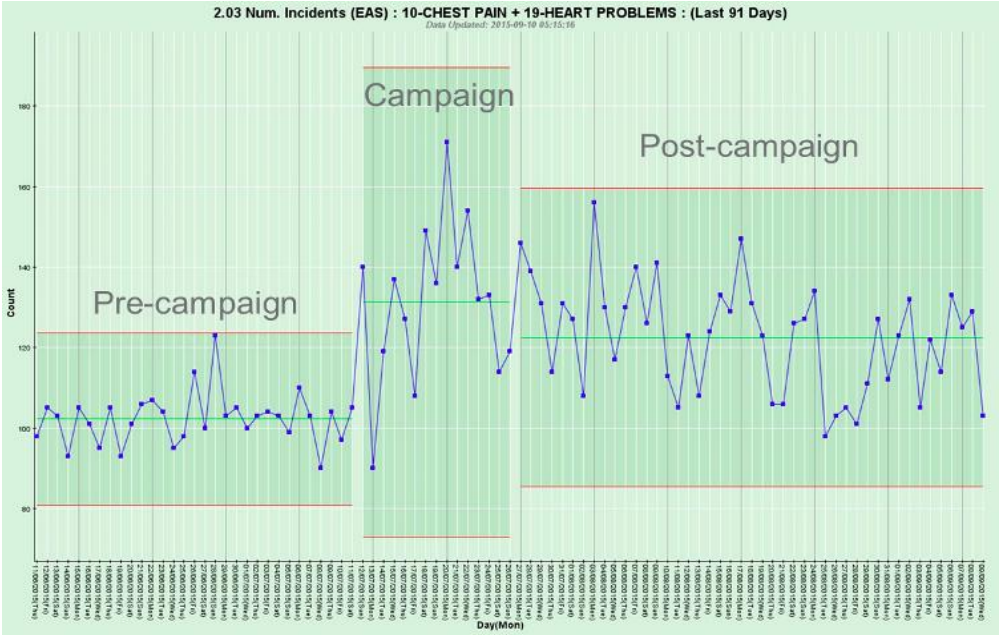
55 year old man with heart attack
Artery opened and stented
Home Day 3

Will





Heart Attack Awareness



St Johns Chest Pain Responses

Heart Attack Awareness

Heart attack message comes just in time

July 27 2015

It was Sunday night in Wellington and the Heart Foundation's new heart attack awareness campaign had just gone live on national television. Watching at home was father-of-two Ian Lancaster, who had no idea the message he was hearing would save his life.

When Ian woke up the next morning, he cycled his usual 10km route to work at Maritime New Zealand in central Wellington.

Raglan pensioner having heart attack saved by insistent friend, and TV ad

5:00 AM Friday Aug 5, 2016

Hamilton | Hamilton News | National | Raglan

SHARE:

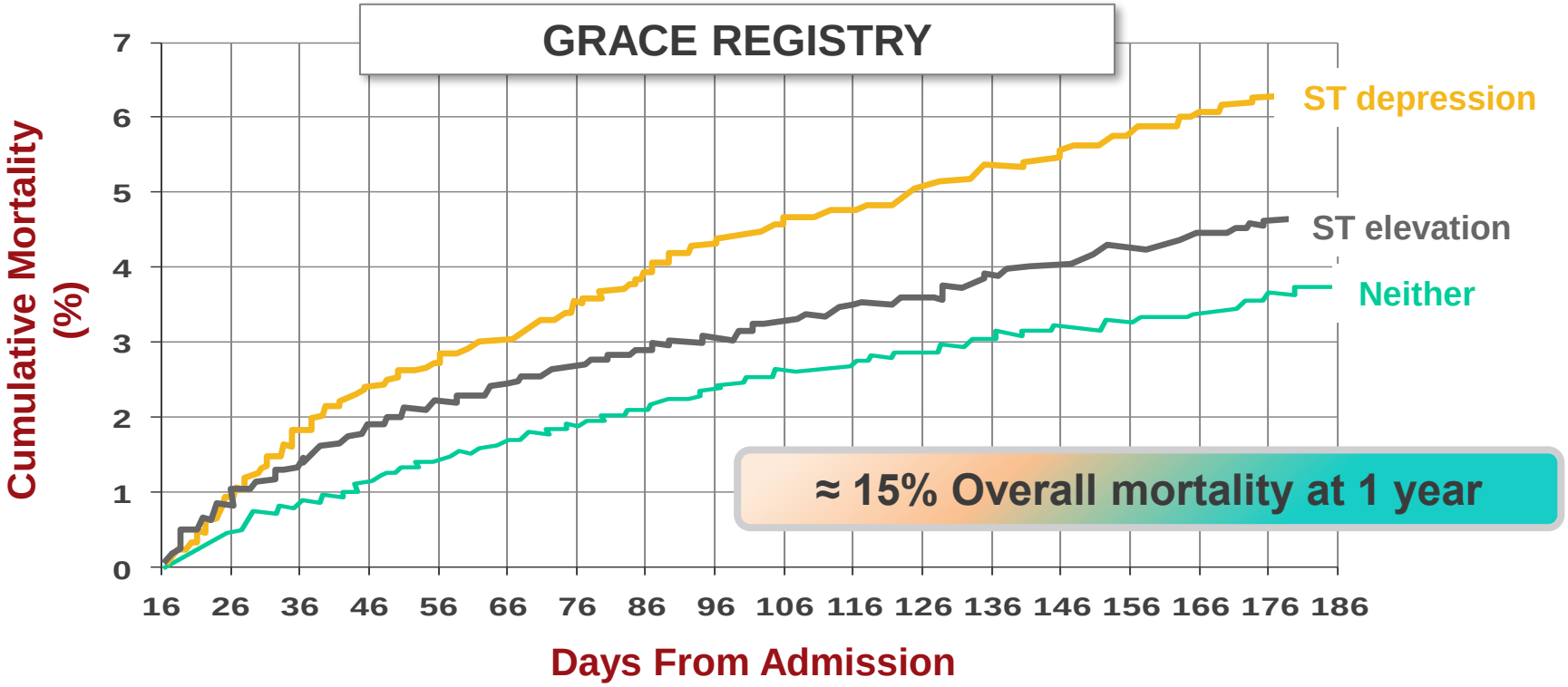
Neil Rendle has his best friend - and a TV ad - to thank for saving his life.

The 75-year-old would have ignored heart attack symptoms if Dot Curry had not recognised the danger signs and ordered him to hospital - where Rendle suffered a

Back to Will

- Ticagrelor
- Atorvastatin
- Bisoprolol
- Cilazapril
- Aspirin
- GTN Spray
- Referred Cardiac Rehab

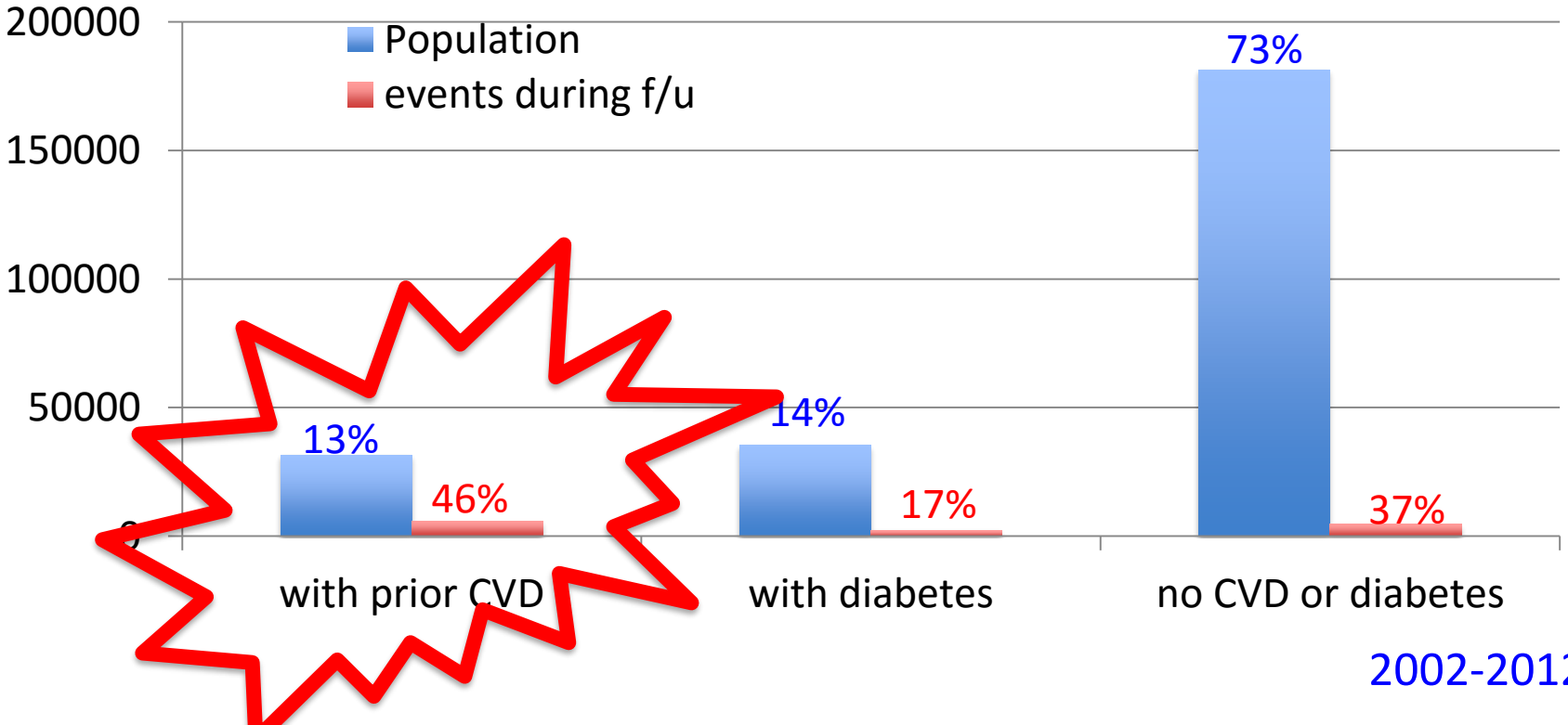
Regardless of How ACS Presents, Post-discharge Mortality Remains High



Post-discharge mortality (GRACE registry).

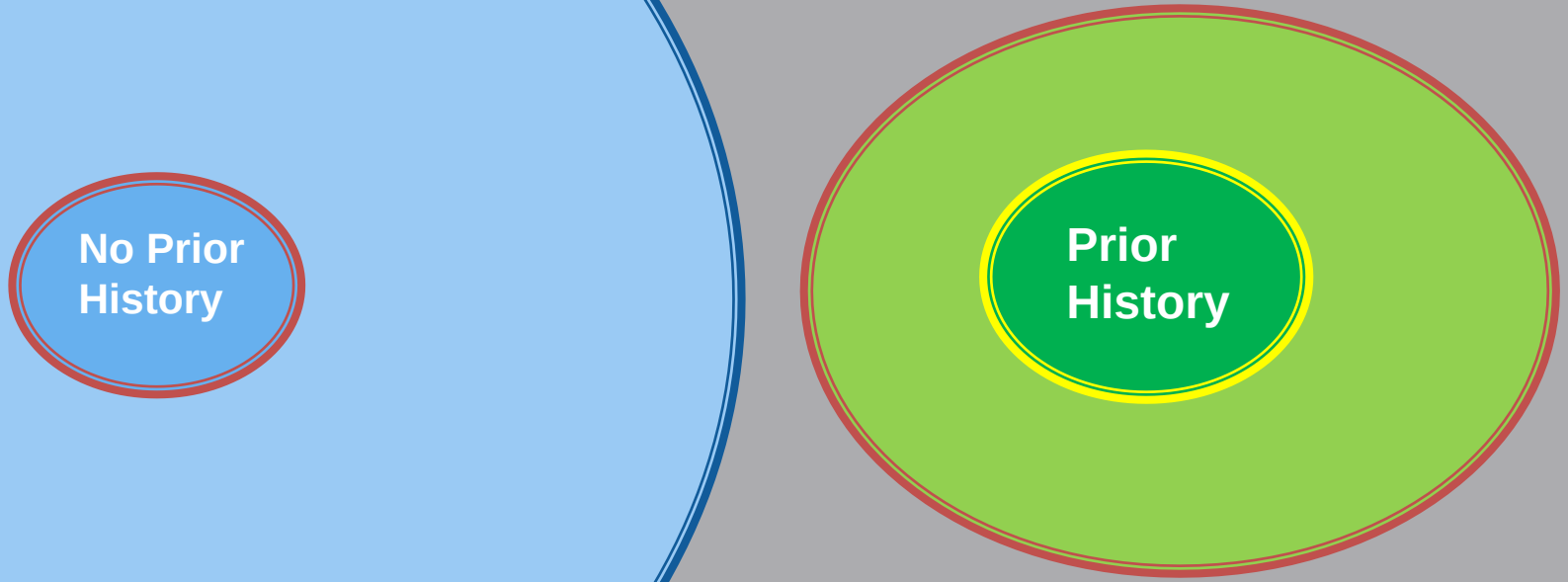
Fox KAA, et al. *Nat Clin Pract Cardiovasc Med.* 2008;5:580–589.
Tang EW, et al. *Am Heart J*. 2007;153:29–35.

CVD events during follow-up in PREDICT population 30-74 years, by clinical history



2002-2012

...on of new cardiac ...vents



Potential Cumulative Impact of 4 Simple Secondary Prevention Treatments

	RRR	Event rate
None		8%
ASA	25%	6%
β-Blockers	25%	4.5%
Lipid lowering	30%	3.0%
ACE-inhibitors	25%	2.3%

CUMULATIVE BENEFITS ARE LIKELY TO BE IN EXCESS OF 75% RRR, WHICH IS SUBSTANTIAL

Table 4 **Guideline recommendations vs. achievements in patients with established coronary heart disease in EUROASPIRE III**

Guideline recommendations	Proportions at goal
Smoking cessation among smokers	48
Regular physical activity	34
BMI <25 kg/m^2	18
Waist circumference <94 cm (men) <80 cm (women)	 25 12
Blood pressure <140/90 mmHg	50
Total cholesterol <4.5 mmol/L (175 mg/dL)	49
LDL cholesterol <2.5 mmol/L (100 mg/dL)	55
Among patients with type 2 diabetes: Fasting glycaemia <7.0 mmol/L (125 mg/dL) HbA_{1c} <6.5%	 27 35

BMI = body mass index; HbA_{1c} = glycated haemoglobin; LDL = low-density lipoprotein.

Table 2 Proportion of people with a Medication Possession Ratio (MPR) ≥0.8 during follow-up

Time period	Number included in analysis*	Total cohort % with MPR ≥0.8†	Patients still alive at the end of follow-up (n=9490) % with MPR ≥0.8†
Year 1	11 348	69	71
Year 2	10 645	67	68
Year 3	9988	66	66
Years 1–3	11 348	66	68

*To account for deaths during follow-up, this analysis also excluded patients who did not spend any days out of hospital during that year.
†During the time period stated in the left-hand column of the table.

Grey, C., et al. (2014). "Maintenance of statin use over 3 years following acute coronary syndromes: a national data linkage study (ANZACS-QI-2)." Heart 100(10): 770-774.

NZ Cardiac Network recommendations for referral and access to secondary care for common cardiac conditions

Cardiology referral not necessarily appropriate, consider declining referral.

Cardiology referral appropriate

Auditable standard. All patients should have an assessment, initial investigation and management plan within 4 months of referral. Priority for more urgent assessment is expected.

Indication for echocardiography

Non Acute Chest Pain

Patients with low cardiovascular risk and atypical symptoms

- Patients with symptoms consistent with angina regardless of CV risk

1. Ensure that referred patients where appropriate have been adequately assessed with either non-invasive testing to a level that can satisfactorily rule out prognostic coronary artery disease or referred for

Acute Chest Pain

All patients presenting with possible acute coronary syndrome

1. Assess with an accelerated chest pain pathway
2. 70% of appropriate patients admitted with acute coronary syndrome receive angiography within 3 days

Confirmed ST elevation myocardial infarction

1. Primary percutaneous intervention if it can be reliably delivered within 120 minutes from first medical contact
2. In patients who cannot receive timely primary percutaneous intervention thrombolysis as soon as possible unless contraindicated
3. When rescue percutaneous intervention would be

If LV function not known to assess left ventricular function in all patients with ACS. To occur before discharge in all patients

Secondary Prevention for IHD

Primary and Secondary Care are expected to work together to provide a community and evidence based prevention programme tailored to individual needs and geographic location for patients with ACS

Suspected Heart Failure

Patients with non-limiting symptoms and normal cardiac biomarkers (when not on treatment), normal ECG and normal

- Symptomatic patients with elevated cardiac biomarkers, abnormal Chest X-ray or ECG
- Timely assessment including early echocardiography
- A clinical governance structure that includes a multi-disciplinary heart failure service

Optimisation of Heart Failure medication phase:

- at the end of (approx. 3 months) the titration phase, post revascularisation and or post MI when initial EF suspected to be <35% in order to determine future management including device implantation.

Follow up:

- if change in clinical status or cardiac exam
- Baseline and serial re-evaluation in a patient undergoing therapy with cardiotoxic agents

embolic risk

- Heart rate not adequately controlled, ongoing symptoms, or treatment intolerance

Echocardiography appropriate for

1. New diagnosis of atrial fibrillation
2. Change in clinical status
3. Suspected underlying structural heart disease or LV dysfunction

frame

Palpitations /syncope/arrhythmia

Patients with infrequent symptoms non-limiting symptoms and low probability of cardiac disease

- Symptoms consistent with sustained tachycardia
- Syncope consistent with cardiac cause
- Exercise induced pre syncope/palpitations

Access to cardiology assessment , appropriate investigation and treatment within an appropriate time frame

Echocardiography for suspected valve/ structural /inherited/ heart disease

- Cannot be explained by fever, anaemia, high output, pregnancy.
- Is associated with new or changing symptoms
- Is associated with a raised BNP, abnormal ECG or Chest X-ray

Follow-up Echocardiography for known heart valve disease

Valve pathology	Mild	Moderate	Severe
Aortic/Mitral regurgitation	Not necessary	1-2 years	6/12-1 y
Aortic Stenosis	Vmax 2.0-2.9 m/s 3-5 years	Vmax 3.0-3.9 m/s 1-2 years	Vmax > 4.0 m/s 6/12-1 y
Mitral Stenosis	MVA > 1.5 cm2 3-5 years	1.0 – 1.5 cm2 1-2 years	< 1.0 cm2 1y

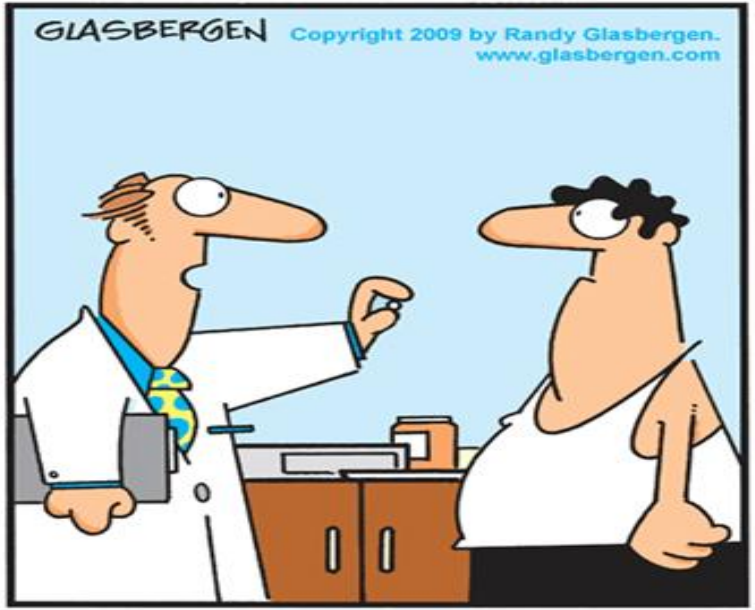
Follow up echocardiography for prosthetic valves

Bioprosthetic	< 2y not necessary	2-3y for first 10y then annually
Mechanical	<3y not necessary	3-5y

Log of echocardiographic activity collected line with these standards

The Importance of Secondary Prevention in New Zealand

- Continue aspirin ≤100mg long-term
- Ticagrelor (or prasugrel or clopidogrel) for 1 year
- ACE inhibitors or ARBs to reduce remodelling as the first drug (compared to β-blocker) if hypotensive i.e.: BP <105mmHg
- Oral β-blocker if patients not in decompensated heart failure and continue 1-3 years. For patients with heart failure should be initiated when stable and along with patients with decreased ejection fractions should be continued long-term.
- Statin therapy to optimise LDL <1.6mmol/L
- Spironolactone in patients treated with ACE inhibitors and β-blockers with EF ≤ 40% or heart failure or diabetes
- Antihypertensive therapy (non pharmacologic or pharmacologic) should be initiated and continued long-term to maintain BP <130/80mmHg
- Nitrates for angina or hypertension
- Calcium channel blockers for angina or hypertension and coronary artery spasm
- Nicotine patches and lozenges for smoking cessation
- Anticoagulation as appropriate for AF



"To prevent a heart attack, take one aspirin every day. Take it out for a run, then take it to the gym, then take it for a bike ride..."

Will

- Visits Dentist
- Sent to see you with note saying that pulse felt irregular

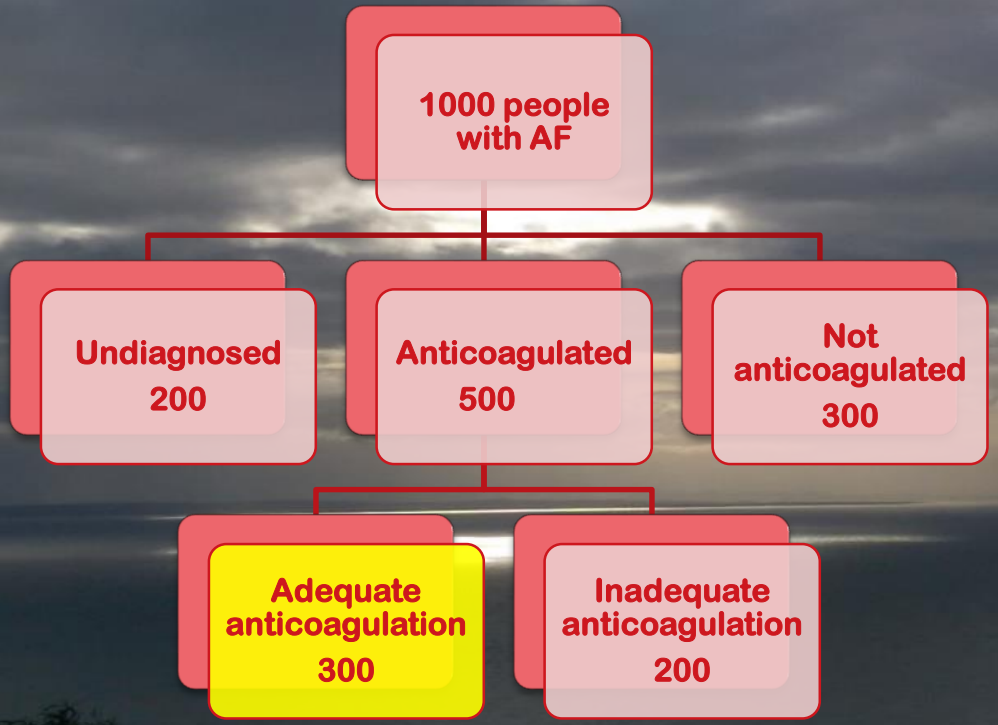
Will

- CHADS 2 VASC **2**
- HAS BLED **1**

Atrial Fibrillation

- Assess Thromboembolic Risk with $CHADS_2VASC$ score
- Assess Bleeding Risk (HAS-BLED)
- In only truly low risk ($CHADS_2VASC=0$) should Anti thrombotic agents not be considered
- Individualise Treatment following Risk Assessment

Atrial Fibrillation



Common Misconceptions about the Risks of Anticoagulation

- Increased risk of bleeding:
  - Patients with a history of GI bleeding are only half as likely to receive warfarin
  - Patients with history of ulcer related GI bleed who have received appropriate therapy are no more likely to rebleed than those without previous GI bleed
- Fall risk:
  - Majority of physicians have reported they would not prescribe warfarin to patients with a high risk of falls
  - Estimated that elderly individuals with a 5% yearly risk of stroke would need to fall 300 times for the risk of an ICH to outweigh the benefits of warfarin
  - Elderly individuals with history of falls have on average 1.8 falls per year and are more likely to suffer a fracture than bleed

Stroke Prevention in AF
Take Home Message

- Aspirin exposes to risk with minimal benefit
- Dabigatran (v Warfarin)
  - 150 mg BID has superior efficacy with similar bleeding
  - 110 mg BID has significantly less bleedings with similar efficacy
- Warfarin still has a role (ACS,mechanical valves etc)
- Medical staff tend to over estimate risk of anticoagulation

AF

- Increasingly common
- Causes worse strokes
- Underdiagnosed
- Undertreated
- Poor TTR is worse than not taking warfarin at all
- Default position should be anti-coagulation unless there is a good reason not to
- NOACS as good as warfarin and safer
- Exercise and weight loss will halt progression and improve symptoms

Take Home Messages

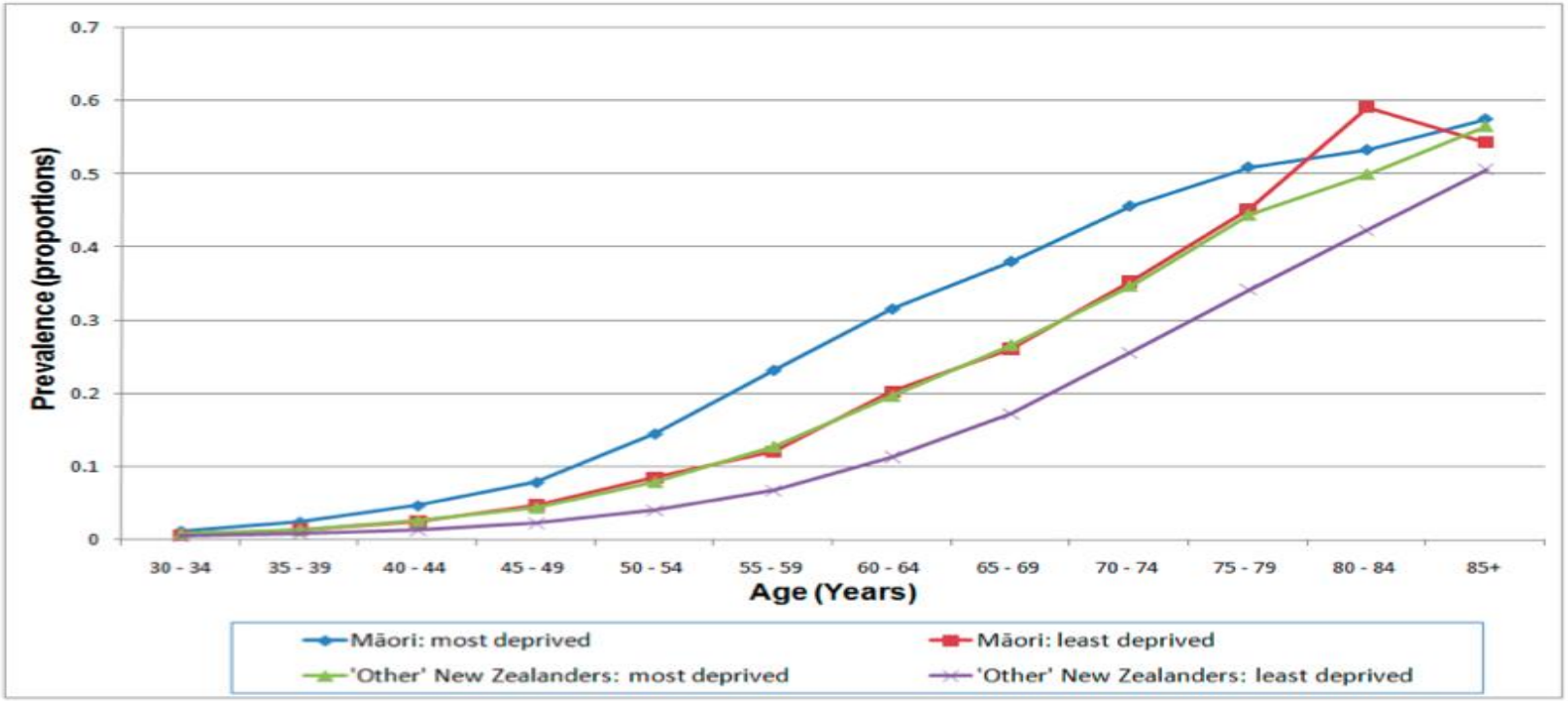
- CV Outcomes have improved significantly over many years but continue to lag behind OECD countries which we should not accept with 1 in 3 Kiwis dying a CV death
- CVD health target has focused attention on risk assessment
- Patients with established heart disease and high CVD risk are responsible for the majority of admissions with ACS
- CVD management performance indicators across the Health continuum are warranted to improve outcomes
- More New Zealanders than ever living with Heart disease with expectation of quality of life

Our Mission

STOP New Zealanders dying early from heart disease and HELP people with heart disease to live full and productive lives.

Through better support/care, research and prevention

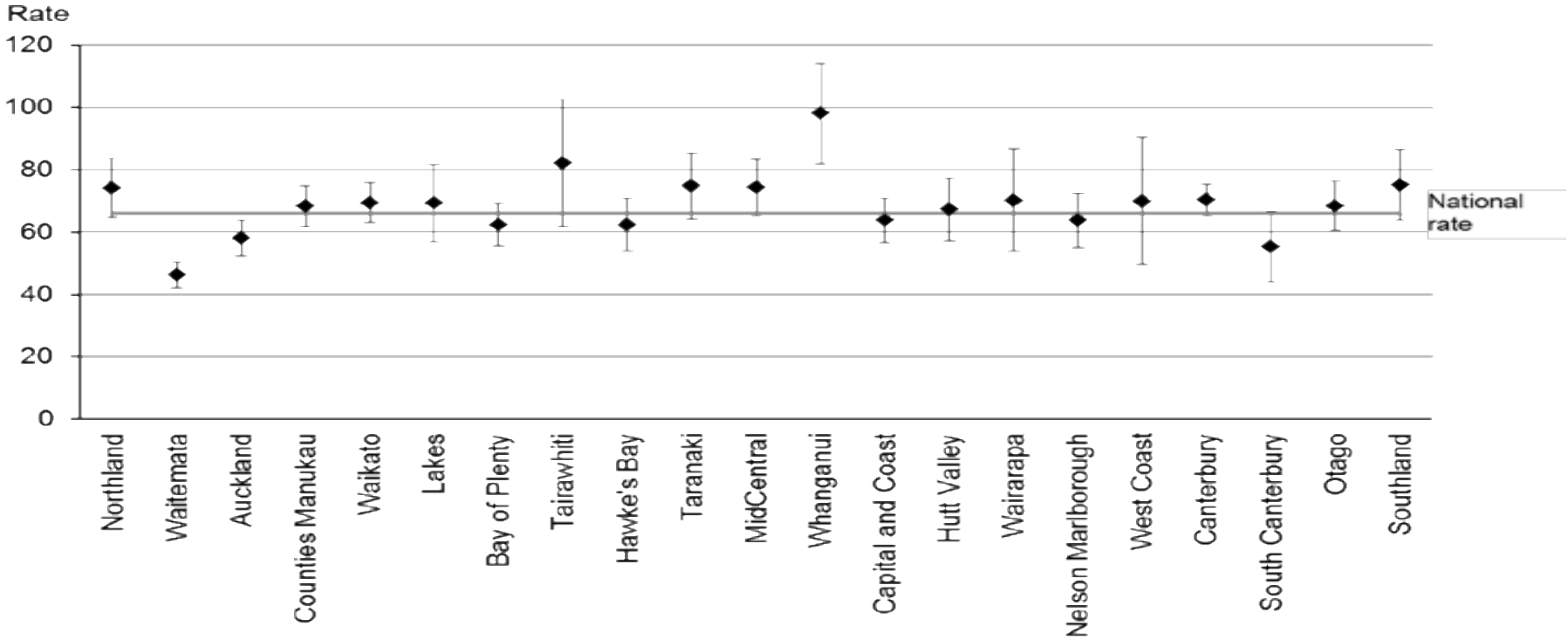
Disparities in CVD prevalence: comparison of least/most deprived* Māori & non Māori



* socioeconomic deprivation based on NZdep

Chan et al. NZMJ 2008. 121:1285/3341

Ischaemic Heart Disease Mortality



Conclusions

IMPROVE-IT

IMPROVE-IT: First trial demonstrating incremental clinical benefit when adding a non-statin agent (ezetimibe) to statin therapy:

- **YES:** *Non-statin* lowering LDL-C with ezetimibe reduces cardiovascular events
- **YES:** Even Lower is Even Better (achieved mean LDL-C 53 vs. 70 mg/dL at 1 year)
- **YES:** Confirms ezetimibe safety profile

1.3 mmol/l 1.8 mmol/l

- **Reaffirms the LDL hypothesis, that reducing LDL-C prevents cardiovascular events**
- **Results could be considered for future guidelines**

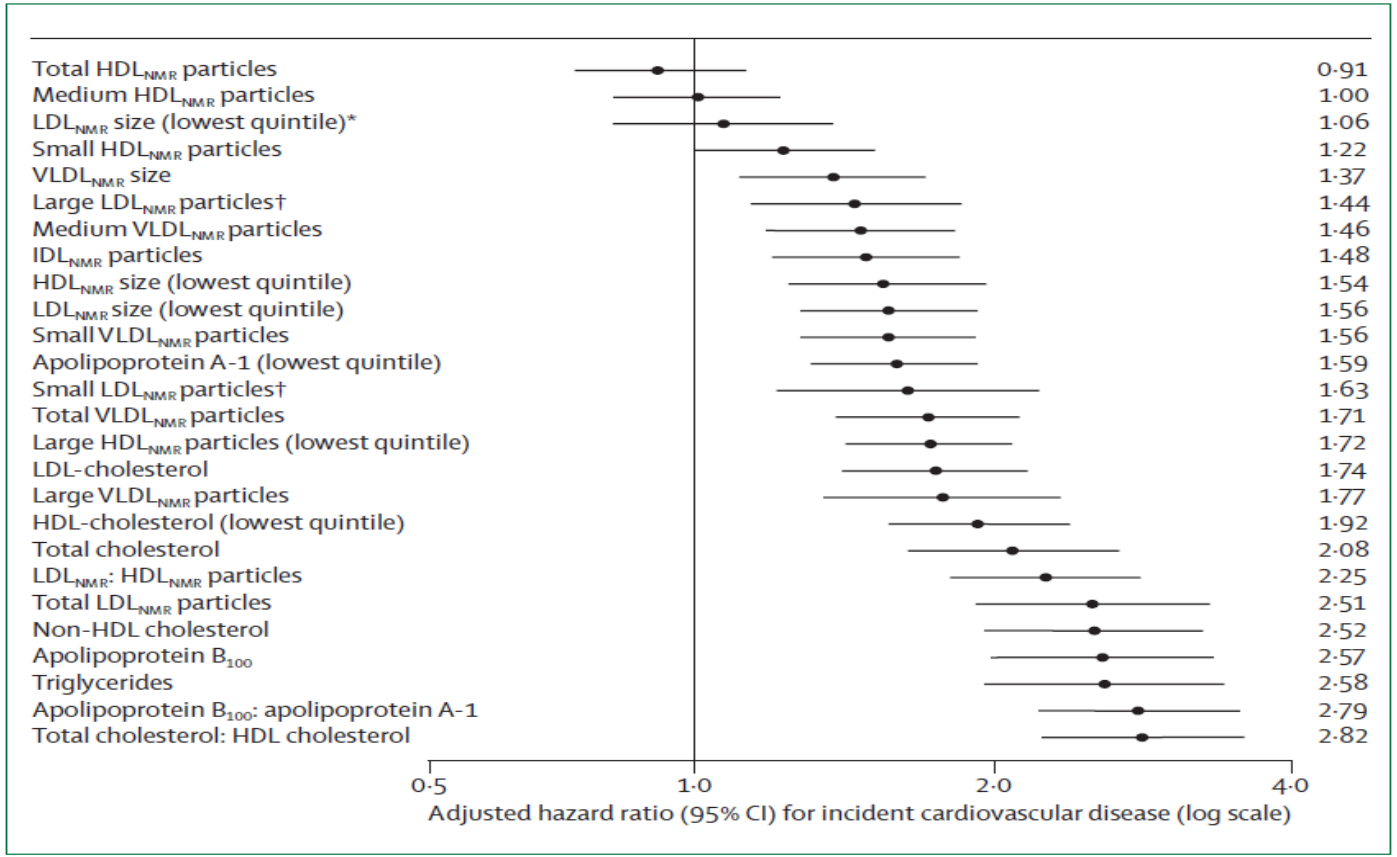


Figure 3: **Direct comparison of 26 lipid fractions as predictors of first-ever cardiovascular events in apparently healthy women**

Population	Recommendation	Grade (What's This?)
Adults ages 50 to 59 years	The USPSTF recommends low-dose aspirin use for the primary prevention of cardiovascular disease (CVD) and colorectal cancer in adults ages 50 to 59 years who have a 10% or greater 10-year CVD risk, are not at increased risk for bleeding, have a life expectancy of at least 10 years, and are willing to take low-dose aspirin daily for at least 10 years.	B
Adults ages 60 to 69 years	The decision to use low-dose aspirin to prevent CVD and colorectal cancer in adults ages 60 to 69 years who have a greater than 10% 10-year CVD risk should be an individual one. Persons who are not at increased risk for bleeding, have a life expectancy of at least 10 years, and are willing to take low-dose aspirin daily for at least 10 years are more likely to benefit. Persons who place a higher value on the potential benefits than the potential harms may choose to use low-dose aspirin.	C
Adults younger than age 50 years	The current evidence is insufficient to assess the balance of benefits and harms of aspirin use to prevent CVD and colorectal cancer in adults younger than age 50 years.	I
Adults age 70 years and older	The current evidence is insufficient to assess the balance of benefits and harms of aspirin use to prevent CVD and colorectal cancer in adults age 70 years and older.	I

Draft USPSTF Recommendations due for publishing 2016