

Coronary Heart Disease in Women

Go Red for Women

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Women are Different from Men

- Sex Differences – biological differences
- Gender Differences – the effect of
 - Social
 - Environmental
 - Community

Leading Causes of Death in New Zealand, 2011

Cause	Males %	Females %	Total %
Coronary Heart Disease	19.6	16.9	18.3
Cerebrovascular Disease	6.8	10.8	8.8
Cancer	31.1	27.6	29
Breast Cancer		4.1	

Perception of Risk of Myocardial Infarction

North American telephone survey

- 44% women thought they were unlikely to have a myocardial infarction in their lifetime
- 55% perceived their risk of breast cancer to be equal or greater than the risk of heart disease

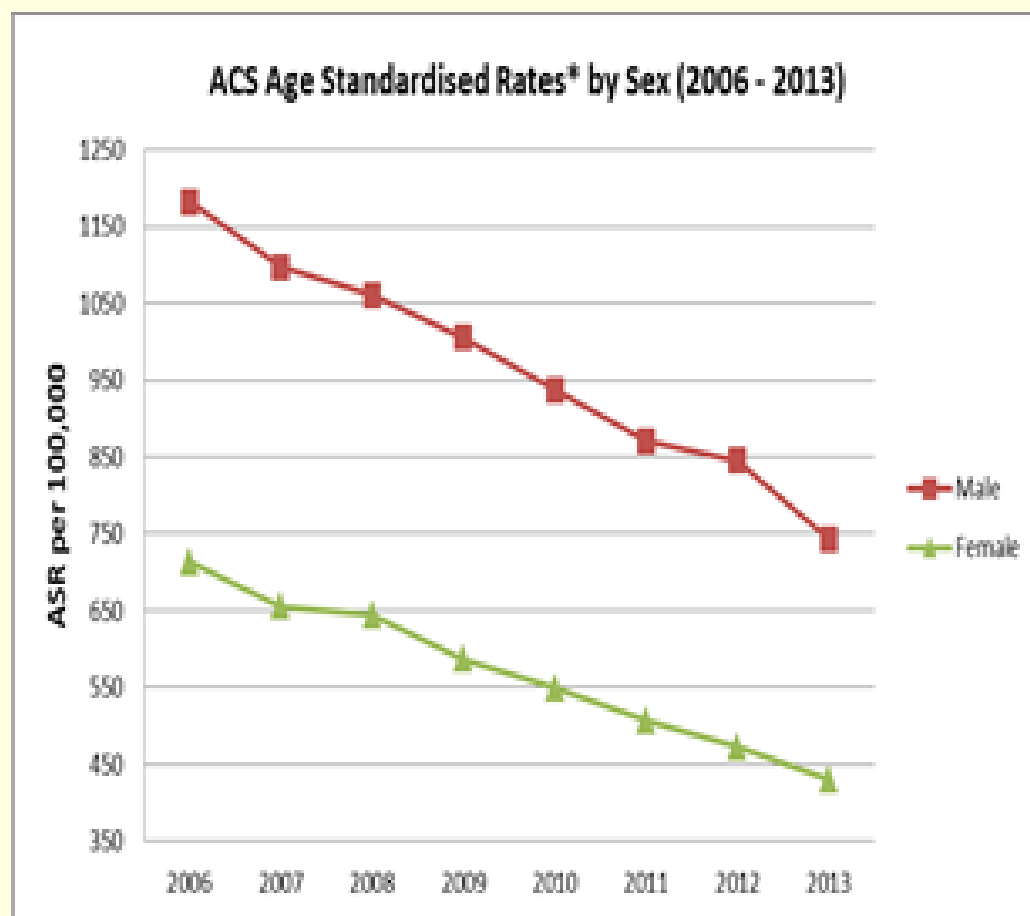
Wenger. Int J Fertil 1998; 43: 84 - 90.



Age Standardised Mortality of New Zealand Women per 100,000 Maori and non Maori, 2011

	Maori	Non Maori	Total
IHD	95.5	44.1	47.3
Cerebrovascular Disease	38.5	29.4	30.6
Breast Cancer	27.3	17.4	18.3

ANZACS-QI National ACS report/ ACS Incidence



Delay in Seeking Treatment for Cardiac Symptoms - Gender Differences

Women suffering an acute myocardial
infarction present later to hospital

Sonke. BMJ 1996;313:853-5

Reasons for Delay in Presentation with Symptoms of Heart Disease

- Difficulty recognising symptoms
- Self-treatment
- Obtaining reassurance
- Using traditional coping strategies for menstruation and child-birth

Cheryl Campbell, 2005. PhD thesis

The Difficulty in Diagnosis

Symptomatic Presentation of Women with ACS

- Often “atypical”
 - Fatigue
 - Sleep disturbance
 - SOB

Prodromal Symptoms (1/12 pre ACS)

515 Women with AMI

- 70.7% unusual fatigue (severe)
- 47.8% sleep disturbance (severe)
- 42.1% SOB
- 39.4% indigestion
- 35.5% anxiety
- 29.7% chest discomfort

McSweeney JC et al. Circulation 2003. 108: 2619-23

Acute Symptoms

515 Women with AMI

- 57.9% SOB
- 54.8% weakness
- 42.9% fatigue
- 43% no chest pain
- 39% cold sweat
- 39% dizziness

McSweeney JC et al. Circulation 2003. 108: 2619-23

Chest Pain at Presentation

515 Women with AMI

- Description – pressure, ache or severe tightness in the chest
- Location
 - 37% back
 - 27.7% high chest

McSweeney JC et al. Circulation 2003. 108: 2619-23

WISE Study

Women's Ischaemic Syndrome Evaluation

Symptomatic Presentation

Typical symptoms

More common in older women

Atypical Symptoms

Fatigue

Sleep disturbance

SOB

Functional Limitation (≤ 4.7 Mets)

Highly predictive future cardiovascular event
(67% events)

Risk Factors for Cardiovascular Events in Women

WISE Study

Risk Factors for Cardiovascular Events in Women

- Diabetes
- Metabolic syndrome (not BMI)
+ \uparrow hsCRP = DM risk
- \uparrow hsCRP
- Hb < 120g/l
- \uparrow SBP (premenopause) RR 5.6 (2.18 – 14.3)
- Oestrogen deficiency premenopause
(anovulatory cycles) RR 7.4 (1.7 – 33.3)

Secondary Prevention

Sex Related Disparities in Care after Hospitalization for CAD >65

49,358 registry patients

- Get With the Guidelines – CAD, US
 - Aspirin within 24 hours
 - Aspirin on hospital discharge
 - Beta – blocker on discharge
 - ACEI/ARB on discharge
 - Smoking cessation counselling
 - Lipid lowering medication

Sex Related Disparities in Care after Hospitalization for CAD >65

- Women were
 - Less likely to receive optimal care
OR=0.92 (0.88-0.95, $p<0.0001$)
 - More likely to have higher mortality than men who received suboptimal care
OR=1.25 (1.00-1.55, $p=0.05$)
- 69% of sex disparity may be reduced by providing optimal care to women

Statin Treatment in Women

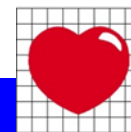
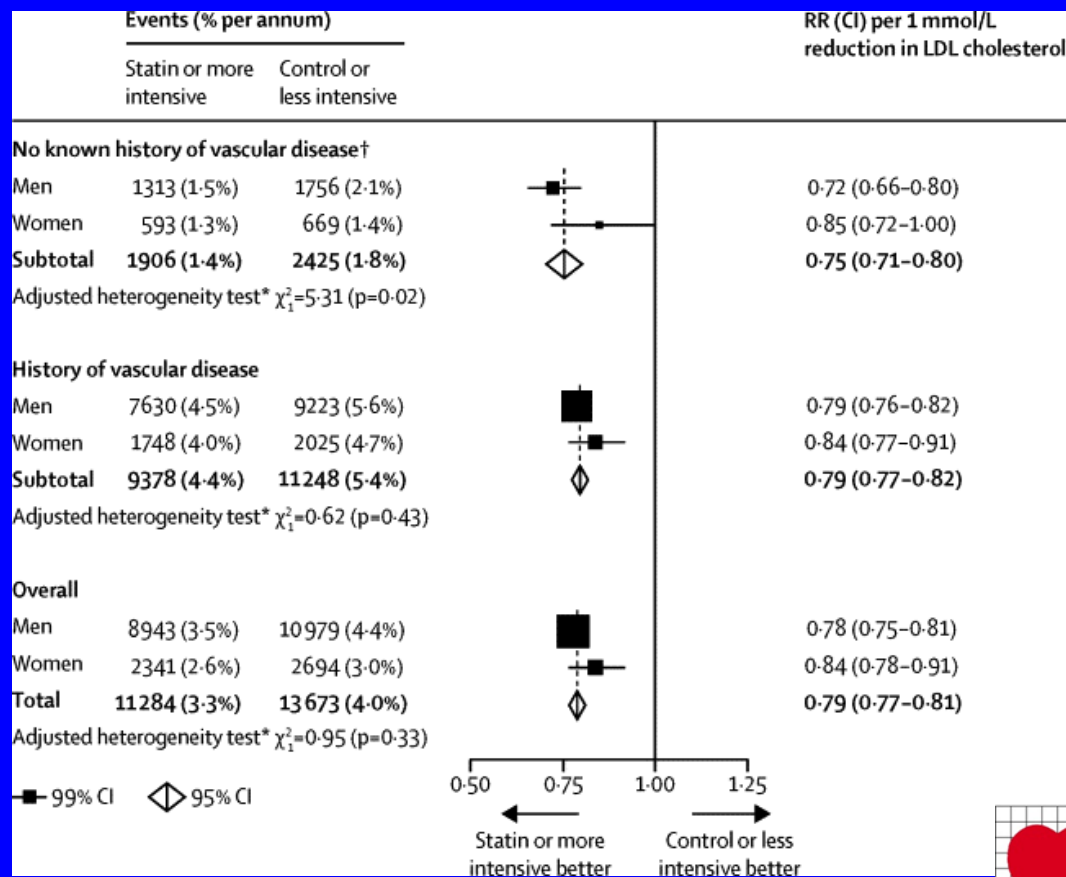
Cholesterol Treatment Trialists

- 174,149 patients
 - 46,675 women
- 22 trials statin vs control
 - 124,537 patients
- 5 trials more intense vs less intense statin

CTT. Lancet 2015; 385: 1397 - 1405

Cholesterol Treatment Trialists

Effects on Major Cardiovascular Events per 1mmol/l ↓LDL



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Secondary Prevention

- Women suffer more depression and have higher rates of mental stress induced ischaemia
- Women are less likely to attend cardiac rehabilitation

Primary Prevention

HRT and Cardiovascular Events

WHI ≤ 5 years

	E + P	Placebo	HR(95% CI)
CHD	195 (0.41%)	153 (0.34%)	1.23 (0.99–1.53)
Stroke	159 (0.33%)	112 (0.25%)	1.31 (1.03-1.68)
	E	Placebo	
CHD	201 (0.54%)	217 (0.57%)	0.95 (0.78-1.16)
Stroke	168 (0.45%)	127 (0.33%)	1.33 (1.05-1.68)

Rossouw JAMA 2007;297:1465-1477

Difference in events for hormone users v placebo aged 50-59 after 5 years

E+P v placebo E v placebo
 Participant yrs (13,728) (12,967) (7,934) (8,140)

Event	E+P extra events	E+P hazard ratio	E extra events	E hazard ratio
CHD	+11	1.49(0.86-2.59)	-5	0.69(0.32-1.48)
VTE	+29	2.27(1.19-4.33)	+5	1.37(0.70-2.68)

Women with Severe Vasomotor Symptoms

- Increased risk for stroke
- Increased aortic calcification
- Reduced flow mediated arterial dilatation



WHI-YET MORE NSS SUBGROUP FINDINGS

Hazard Ratios at 5 years

Regimen	Event	Women with mod to severe flushes	Women with no or mild flushes
E+P	CHD	HR 1.87	HR 1.44
E+P	Stroke	HR 2.23	HR 1.33
E	CHD	HR 1.32	HR 1.00

Hormone Replacement Therapy

Cardiovascular Risk

- Cardiac risk from HRT is relatively low in the early postmenopausal woman
- HRT used early following menopause may slow deterioration in vascular function
- Stroke risk from HRT remains significant across all age bands
- HRT cardiovascular risk may be attenuated by the use of statins and aspirin
- HRT should be avoided in women with established CV disease
- There is no evidence that transdermal hormone preparations or bioidentical hormones convey a lower CV risk

Challenges in Improving Outcomes for Women with CAD

- Educate women and their families that they are at risk
- Maori and Pacific Island focussed education
- Better treatment of risk factors especially BP, DM, metabolic syndrome

Challenges in Improving Outcomes for Women with ACS

- Greater use of proven secondary prevention therapies on discharge from hospital and long term post discharge
- Cardiac rehabilitation better tailored to women's needs especially psychosocial support