BROWN
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Women's Health
Council of RI

Medical Therapies for Optimizing Cardiovascular Health in Women

Improving Individual and Population Outcomes

RI Women's Health Council Symposium
October 15, 2015

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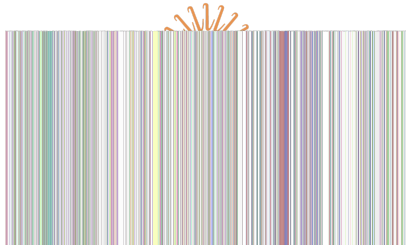

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Disclosures

None

Behind the Declining CVD Mortality Curve

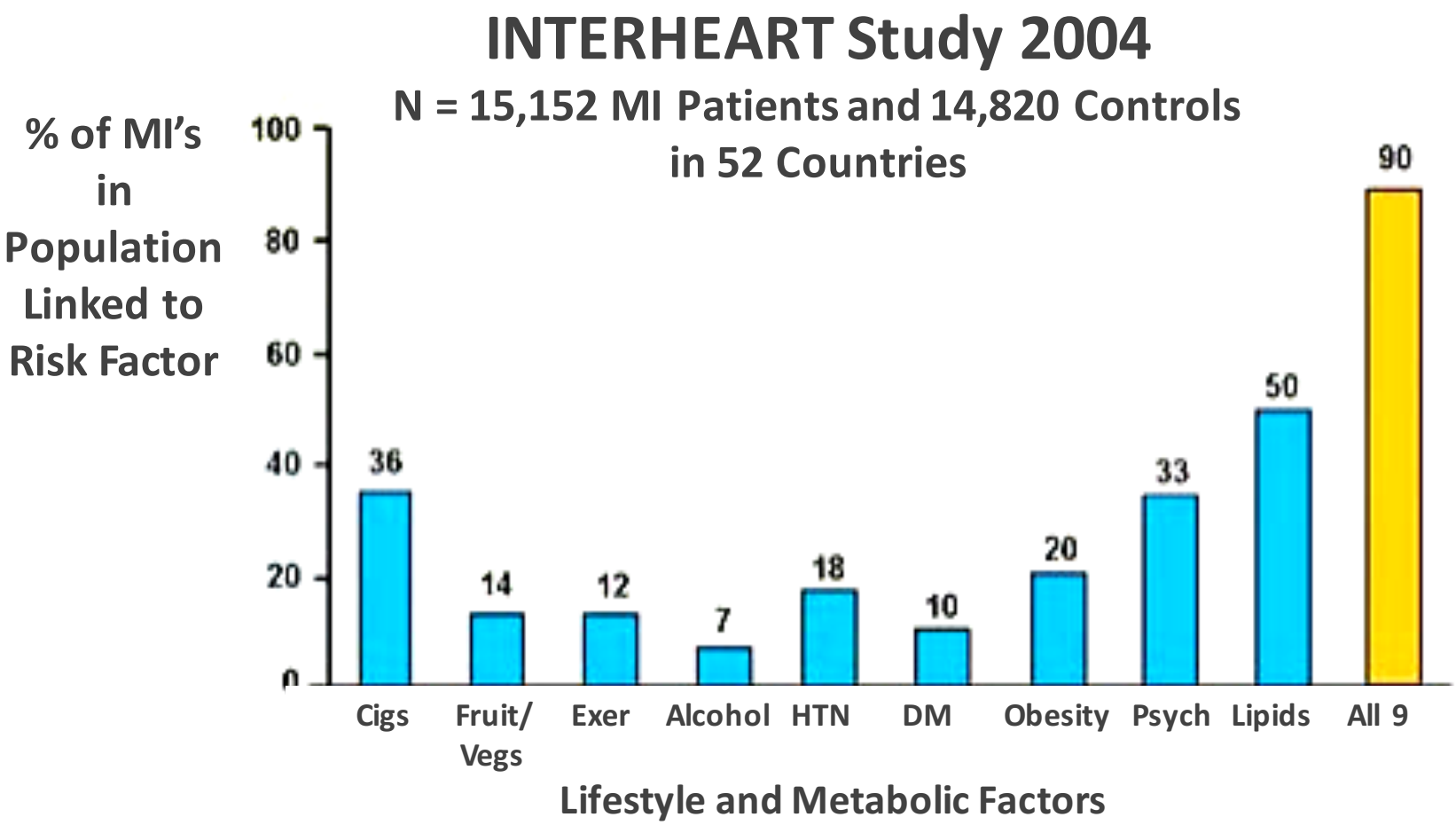
Unfavorable Cardiovascular Disease Trends For Women

- **In younger and middle aged women**
  - No or little decline in the mortality rate in the last decade[1]
  - Higher case fatality rates during acute CHD events[2]
  - Minimal decrease, or increase, in prevalence of traditional risk factors (high LDL-C, BP, smoking, DM) in the last decade[3]
- **In all women, particularly minorities**
  - High prevalence of poor lifestyle factors, including obesity, physical inactivity, and poor diet
- **In all Americans**
  - Rising rates of *non-fatal* CV events, esp. in younger groups, including MIs and PCIs, leading to rising CHD prevalence, and ballooning direct and indirect costs of CVD

[1] Wilmot, KA. Circulation 2015;132:997-1002.
[2] Pancholy, SB. JAMA Int Med 2014;174:1822-30.
[3] CDC/NCHS NHANES Survey 2009-2010

Population Risk of Myocardial Infarction Attributed to Modifiable Risk Factors

Traditional, Lifestyle and Psychological Factors Impart Risk



Yusuf, S et al. Lancet 2004; 364; 937-52.

Seven Cardiovascular Health Metrics Established by the AHA

Physiologic and Behavioral Factors Defined

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TABLE 1 Definition of Poor, Intermediate, and Ideal Cardiovascular Health in Adults

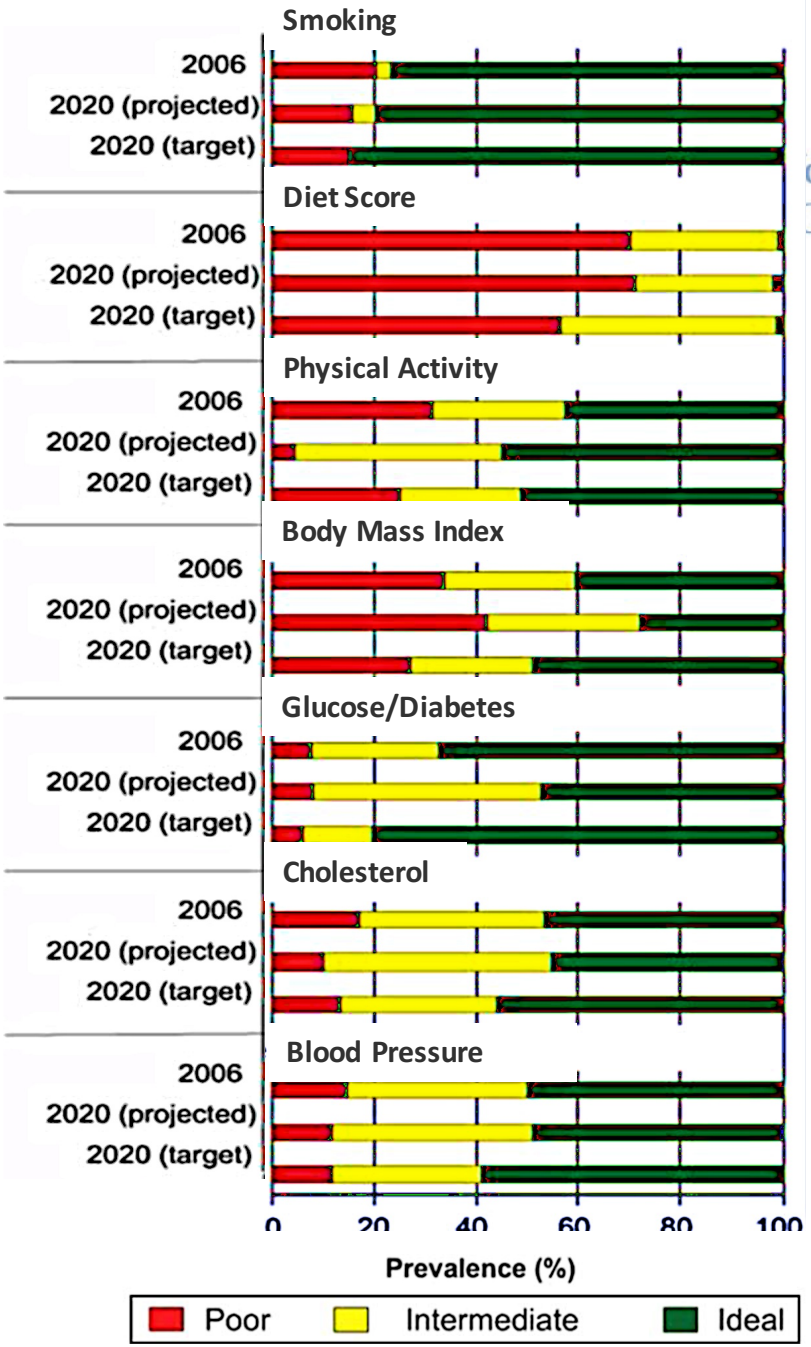
Goal/Metric	Poor Cardiovascular Health	Intermediate Cardiovascular Health	Ideal Cardiovascular Health
Smoking status	Current smoker	Former smoker, quit ≤12 months ago	Never smoker, or quit >12 months ago
Physical activity	None	1-149 min/week moderate intensity or 1-74 min/week vigorous intensity or 1-149 min/week moderate + vigorous intensity	≥150 min/week moderate intensity or ≥75 min/week vigorous intensity or ≥150 min/week moderate + vigorous intensity
Body mass index	≥30 kg/m^2	25-29.9 kg/m^2	<25 kg/m^2
Healthy diet score*	0-1 components	2-3 components	4-5 components
Total cholesterol	≥240 mg/dl	200-239 mg/dl or treated to goal	<200 mg/dl
Blood pressure	SBP ≥140 or DBP ≥90 mm Hg	SBP 120-139 or DBP 80-89 mm Hg or treated to goal	<120/<80 mm Hg
Fasting glucose	≥126 mg/dl	100-125 mg/dl or treated to goal	<100 mg/dl

Table From Tapper. JT et al. Time to change focus: Defining, Promoting and Impacting Cardiovascular Population Health. JACC 2015;66:960-71.

Original Publication:
Lloyd Jones, DJ et al. Defining and setting national goals for cardiovascular health promotion and disease reduction: AHA Strategic impact goal through 2020. Circulation 2010:121:586-613.

Achievement of Cardiovascular Health Metrics in U.S. Women in 2006, and 2020 Projections

Large Gaps Exist, < 1% have Ideal Cardiovascular Health, and 2020 Goals Unlikely to Be Met



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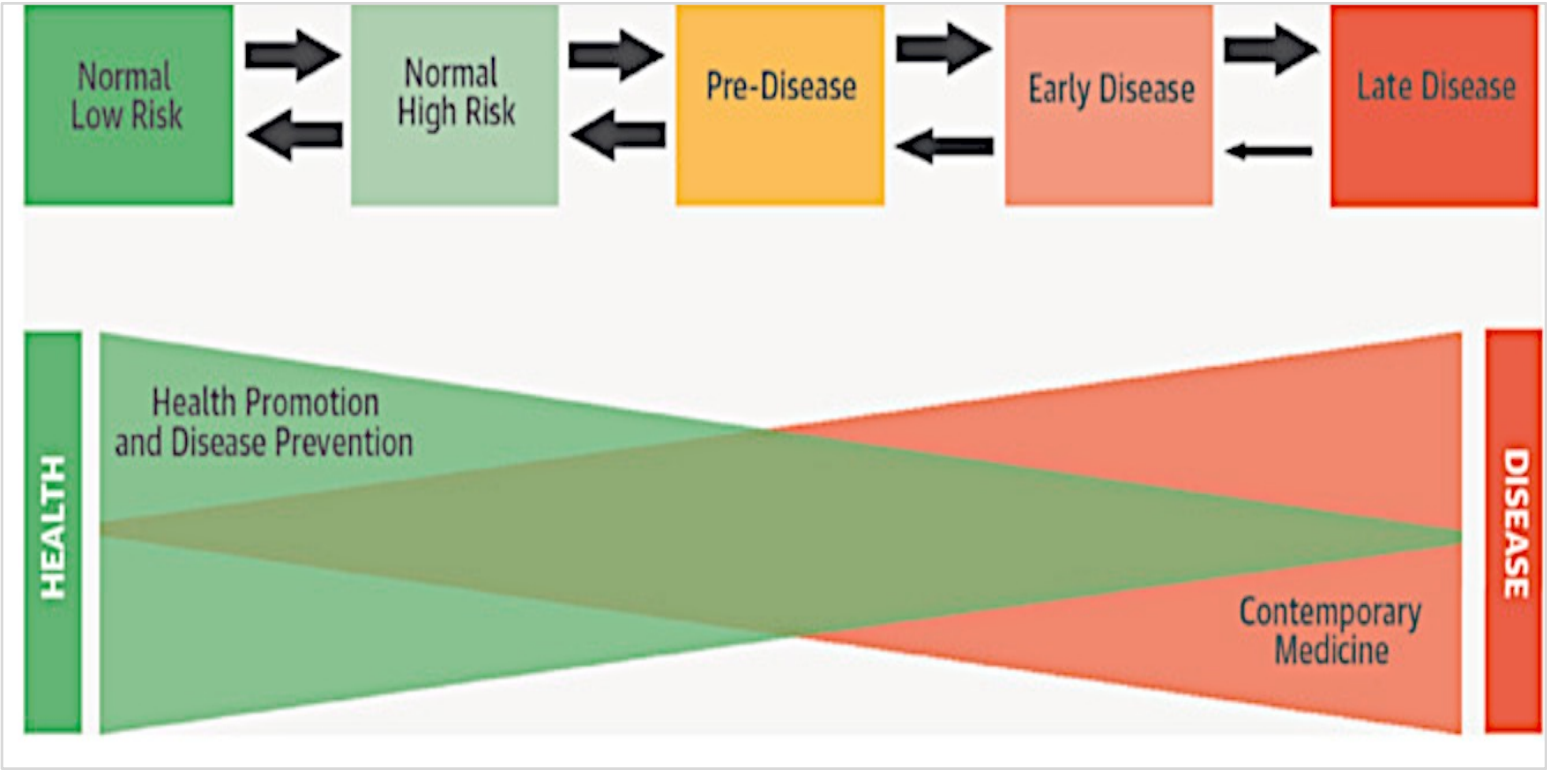
Circulation. 2015;131:e29-e322

A Paradigm Shift in Cardiovascular Medicine

Expanding the Focus from Treating Disease to Promoting Cardiovascular Health in Individuals and the Population



Knapper, JT et al. Time to change our focus. Defining, promoting and impacting cardiovascular population health. JACC 2015:66:960-71.

Cardiovascular Health Promotion Across the Lifespan

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Health System, Public Health, Community and Policy Interventions

All Ages

- Cigarette taxes
- Public smoking bans
- Insurance coverage for smoking cessation programs
- Sugar-sweetened beverage taxes
- Menu calorie counts
- Restaurant trans-fat restrictions
- Dietary guidelines

- Increased bike lanes
- Web-based programs
  - *Choose to Move*
- *Heart Truth* campaign
- *Go Red for Women*
- Media campaigns
- Activity-promoting city planning
- Public-private partnerships

- *Let's Move* initiative
- School-based programs
  - *CATCH*
  - *SPARK*
  - Eliminating cafeteria whole milk
- *VERB* media campaign
- Increased breastfeeding

- Workplace interventions
  - Treadmill desks
  - On-site gyms
  - Comprehensive programs

- *The Million Hearts Initiative*
  - ABC's of cardiovascular health

Childhood | Adulthood | Older Age

Knapper, JT et al JACC 2015:66:960-71.

Pearson, TA et al. Circulation 2013; 127:1730-53

The Million Hearts Campaign

An Initiative to Improve Delivery of the "ABC'S" of CVD Prevention Within Healthcare Systems

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- **Public health initiative** by HHS, co-sponsored by CMS and CDC
- **Goal** is to prevent 1 million heart attacks and strokes by 2017
- **Strategy** is to engage patients, providers and health systems in adopting the evidence-based **"ABC'S"** of CVD prevention
  - **A**spirin Use, when appropriate
  - **B**lood Pressure control
  - **C**holesterol control
  - **S**moking cessation

Million Hearts®

- **Implementation and Outcomes -** HCS are encouraged to utilize teams and health IT to improve performance of **ABC'S** system-wide, and to report ABC'S outcomes (now NQF-endorsed and included in the CMS PQRS and EHR programs)

Potential Impact of CVD Prevention on Reducing CVD Incidence

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- Of Americans alive today, 78% could be targeted for at least 1 prevention intervention
- If all received all eligible interventions
  - MI's would be reduced by 63%, strokes by 31%
  - 221 million life-years and 244 million QALYs would be added to the U.S. population / 30 years
- Interventions with the greatest benefits to the population are
  - ASA in high risk individuals
  - BP lowering in diabetics
  - Cholesterol lowering in those with CAD or high risk
  - Smoking cessation

Kahn, P. Impact of prevention on reducing the burden of cardiovascular disease. Circulation 2008;118:576-85.

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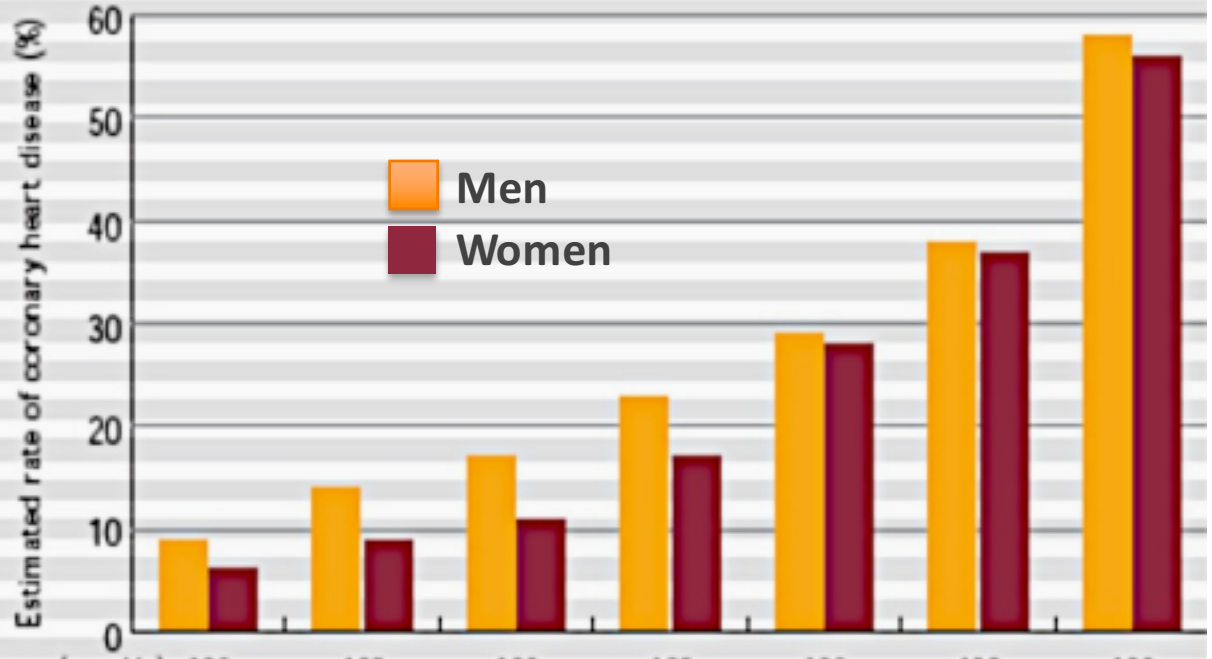
Cardiovascular Risk Assessment

The First Step to Implementing the ABC'S

Effect of Multiple Risk Factors on 10-Yr CHD Risk - Framingham Study - 1996

Multiple Risk Factors Narrow the CHD Gender Gap

10 Year Risk of CHD in Middle Age Based on Risk Factor Burden

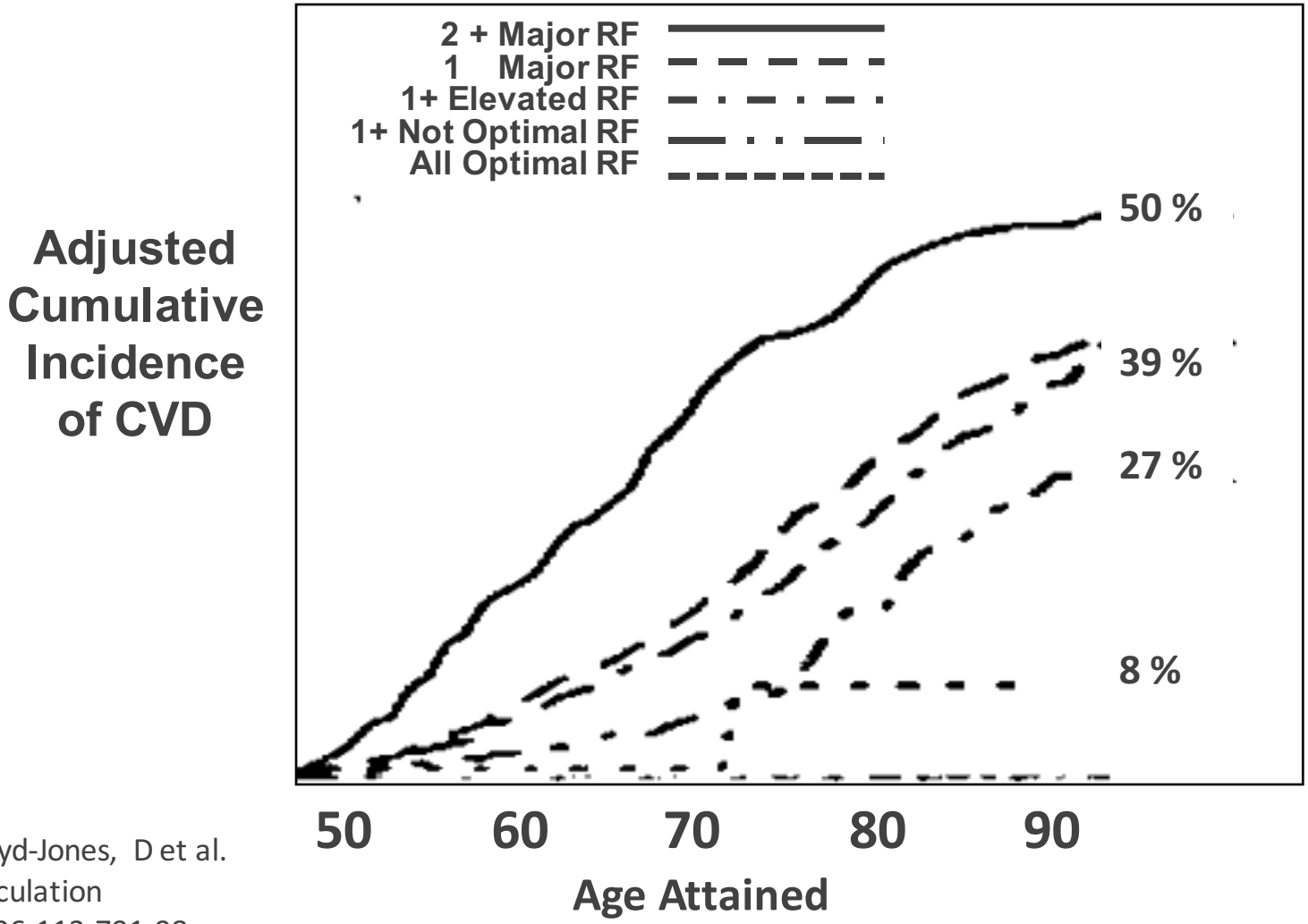


Risk factors							
Systolic blood pressure (mm Hg)	120	160	160	160	160	160	160
Cholesterol (mg/dL)	220	220	259	259	259	259	259
HDL cholesterol (mg/dL)	50	50	50	35	35	35	35
Diabetes	–	–	–	–	+	+	+
Cigarette smoking	–	–	–	–	–	+	+
Left ventricular hypertrophy	–	–	–	–	–	–	+

From Kannel, WB. Framingham Heart Study, 1996.

Lifetime Cardiovascular Disease Incidence in Women by Risk Factors at Age 50 - FHS 2006

Lifetime Risk Proportional to Risk Factor Burden at Age 50



Major RFs
TC > 240
SBP > 180
Smoker
DM

All Optimal RFs
TC <180
SBP <120/80
Non-smoker
No DM

Lloyd-Jones, D et al. Circulation 2006;113;791-98.

Calculate 10-Year +/- Lifetime ASCVD Risk In All Women Ages 40-75

ACC/AHA Pooled Risk Calculator

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Estimator | Clinicians | Patients | About

ASCVD Risk Estimator*

10-Year ASCVD Risk

11.3% calculated risk

2.1% risk with optimal risk factors**

Lifetime ASCVD Risk

39% calculated risk

8% risk with optimal risk factors

Recommendation Based On Calculation

Gender: Male | Female

Age: 59

Race: White | African American | Other

HDL - Cholesterol (mg/dL): 42

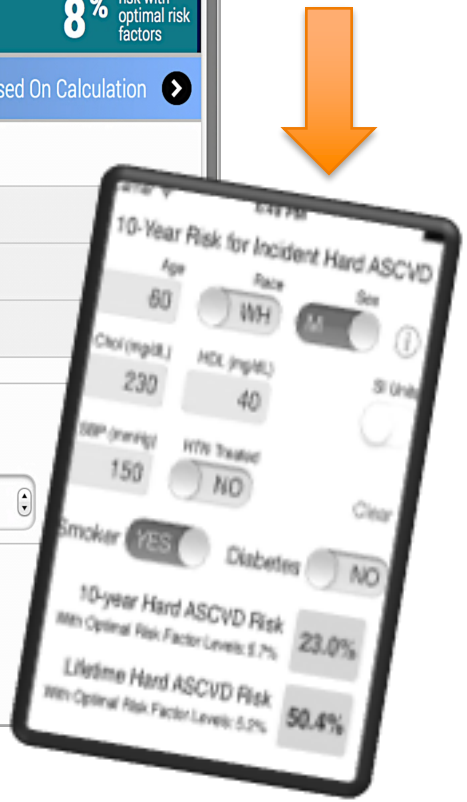
Total Cholesterol (mg/dL): 220

Systolic Blood Pressure: 150

Diabetes: Yes | No

Treatment for Hypertension: Yes | No

Smoker: Yes | No



Web-Version downloadable from: www.cardiosource.org
Mobile App versions downloadable from Apple Store or Google

ASCVD RISK

Consider Reynolds Risk Score in Women with Family History of CHD or High hsCRP

Score Reclassifies Up to 40% of Intermediate Risk Women

Reynolds Risk Score
Calculating Heart and Stroke Risk for Women and Men

Home | Calculator | FAQ

If you are healthy and without diabetes, the Reynolds Risk Score is designed to predict your risk of having a future heart attack, strok or other major heart disease in the next 10 years.

In addition to your age, blood pressure, cholesterol levels and whether you currently smoke, the Reynolds Risk Score uses information from two other risk factors, a blo test called hsCRP (a measure of inflammation) and whether or not either of your parents had a heart attack before they reached age 60 (a measure of genetic risk). To calculate your risk, fill in the information below with your most recent values. Click here for help filling the information.

Gender	○ Male ○ Female
Age	Years (Maximum age must be 80)
Do you currently smoke?	○ Yes ○ No
Systolic Blood Pressure (SBP)	mm/Hg
Total Cholesterol	mg/DL (or) mmol/L
HDL or "Good" Cholesterol	mg/DL (or) mmol/L
High Sensitivity C-Reactive Protein (hsCRP)	mg/L
Did your Mother or Father have a heart attack before age 60 ?	○ Yes ○ No

Ridker, PS et al JAMA 2007;297:611-19.

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Medical Interventions to Optimize Cardiovascular Health

Aspirin
Blood Pressure Control
Cholesterol Management
Smoking Cessation

Aspirin Use in Secondary Prevention Women

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Benefits Clearly Outweigh Risks

- 2009 Meta-Analysis from Anti-Thrombotic Trialist's of **16 secondary prevention trials** with >17,000 subjects showed proportional reductions in CV risk on ASA were similar women and men
  - RR Major CHD Event 0.73 (95% CI, 0.51 - 1.03)
  - RR Isch Stroke 0.91 (95% CI, 0.52- 1.07)
  - RR Serious Vascular Event 0.81 (95% CI, 0.64 - 1.02)

~27% Reduction in MI risk

- Hemorrhagic CVAs were not reported in all RCTs, so pooled numbers were small and unreliable
- Absolute bleeding rates (GIB) were 0.1% vs. 0.07% per year, well below the absolute risk reductions in CV events in ASA users

Antithrombotic Trialist's Collaboration Lancet 2009;373:1849-60

Aspirin Use in Primary Prevention Women

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Data Changing, Conflicting

- 2009 Meta-Analysis from Anti-Thrombotic Trialist's of **six primary prevention trials** with >95,000 M and W showed proportional reductions in CV risk on ASA for women
  - RR Major CHD Event 0.95 (NS) [significant in men]
  - RR Ischemic Stroke 0.77 (95% CI, 0.59- 0.99))
  - RR Vascular Event 0.88 (95% CI, 0.76 - 1.01)
  - Modeling showed net benefit depended on the BALANCE between absolute risk of a CV event vs. absolute risk of bleeding, with benefits greater than risks if 10 Yr ASCVD risk is > 20%
- 2012 Meta-analysis of 3 new trials (N > 102,000) showed no gender differences in benefits, and NNT to prevent a CVD event was >> NNH with GIB, but women > age 65 underrepresented

NNT = number needed to treat
NNH = number needed to harm

Antithrombotic Trialist's Collaboration
Lancet 2009;373:1849-60

Seshasai SR et al.
Arch Intern Med. 2012;172(3):209.

Summary of ASA Prescribing Advice For Primary Prevention Women

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- Make all decisions on a case-by-case basis
- In women with 10 Year CVD risk < 10 %, data indicate ASA risks outweigh benefits
- In moderate risk women with 10 Year risk 10-19% and age > 65, consider ASA in those without risks for GIB or ICB, but NOT as a substitute for lipid or BP drug therapy
- Await additional RCT data
  - **ARRIVE Trial**
  - **ASPREE Trial**

Will examine ASA benefits/risks in moderate to high risk primary prevention patients with 10-Year Risk 10-19%

Treating High Blood Pressure to Optimize Cardiovascular Health in Women

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Gender-Specific Issues

- Prevalence of HTN higher in women after age 65
- HTN-induced LVH is a CHD risk 'equalizer'
- Menopausal women have higher BP
- PCOS, and OC use, are associated with HTN
- Pregnancy-induced HTN affects large numbers
- Treated women less likely to achieve control
- Treated women more likely to have side effects
- Treatment favors stroke reduction

40% Relative RR in CVA risk, 15% in MI risk

Best Choice of First Line Anti-Hypertensive

Newer Meta-Analyses Support ACEIs and Calcium Channel Blockers Over Beta Blockers Except if Prior MI

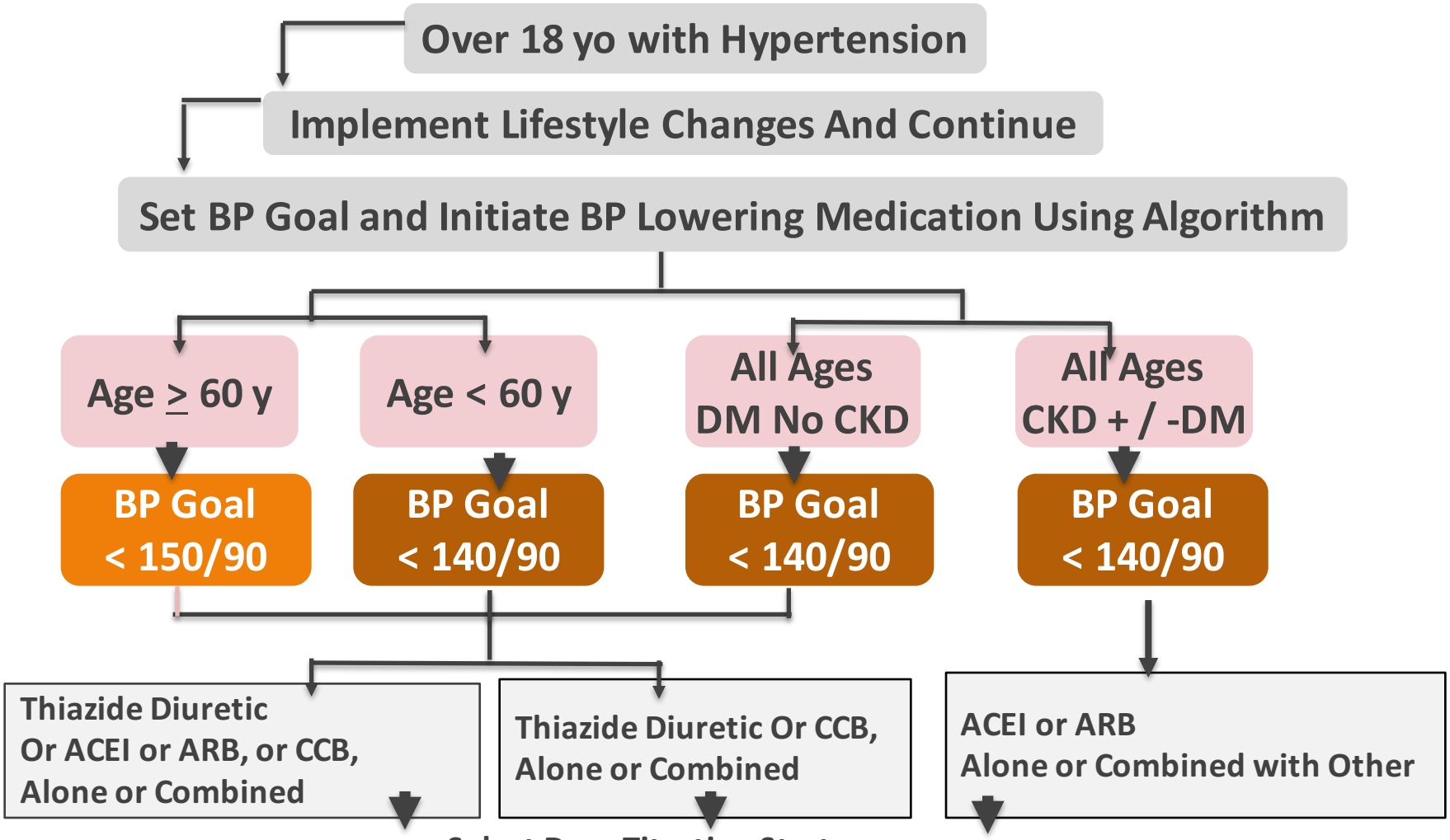
Beta Blockers vs. Placebo

- NS differences in MI or Total Death
- Less robust reduction in CVAs vs. other drugs

- **Beta Blockers vs. Other Active Treatment**
  - vs. Diuretics: NS differences in CVA, MI or death
  - vs. Calcium Blockers: 24% higher CVA incidence
  - vs. RAS blockers: 30% higher CVA incidence

Beevers, DG. Lancet 2005;366:1510-12. Bangalore, S et al JACC 2007;50:563-72.

2014 Evidence-Based Guideline from the JNC-8P For Management of High Blood Pressure in Adults



Select Drug Titration Strategy

A. Maximize 1st medication before adding 2nd
B. Add a 2nd medication before maximizing 1st
C. Start 2 classes separately or in combination

Loosening of BP Targets After Age 60 Impacts Primarily Women and Blacks

Arguments Against a Higher Target

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- Most over age 60 with HTN are women and/or blacks—groups with highest CVA rates, highest BPs and poorest BP control
- Population studies show a continuous relationship between BP and CVD, even at lower ranges
- The WHI showed that older women with pre-HTN had a 93% increase in CVA risk
- The SHEP Trial showed on-treatment BP of 143/68 (vs. 155/72) was associated with a reduced stroke rate
- All other HTN guidelines recommend BP control to at least 140/90mmHg, until age 80+

Krakoff, LR et al. 2014 Hypertension Recommendations from the 8th JNC Panel members raise concerns for elderly black and female populations JACC 2014;64:394-402.

Treating Cholesterol to Optimize Cardiovascular Health in Women

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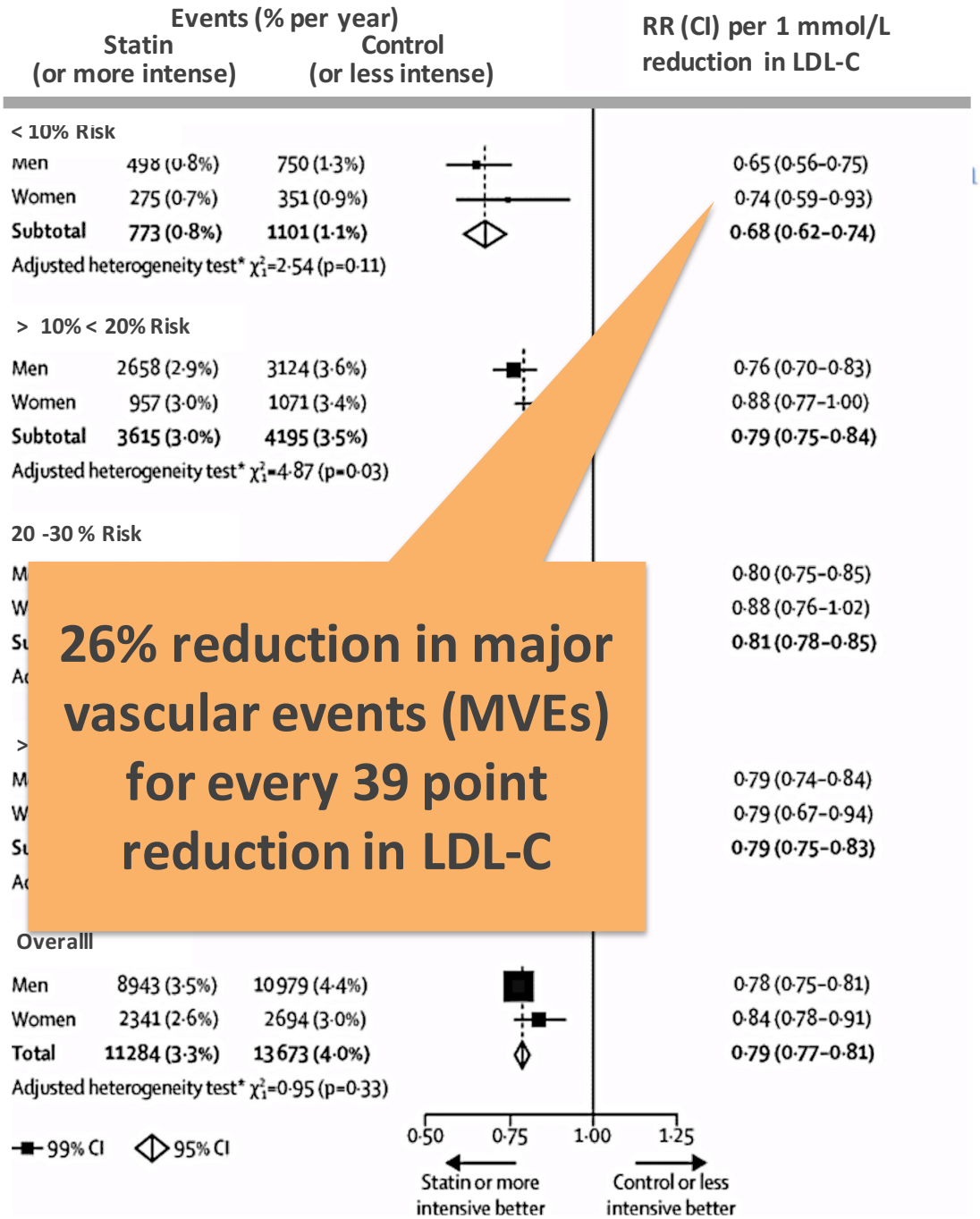
Gender-Specific Issues

- Prevalence is higher in older women
- Menopause increases TC, LDL-C and TC/HDL-C
- A TC/HDL ratio $\geq$ 7.5 is a CHD risk 'equalizer'
- HRT, OCs and pregnancy may severely raise TGs
- Pregnancy/lactation preclude most lipid drug therapy
- Women less likely to be treated, and to reach 'targets'
- Women more likely to discontinue statin therapy
- Statins for primary prevention in women were debated

Statins for ASCVD Risk Reduction in Women Across the Spectrum of Risk

2015 Meta-Analysis of Individual Data from 27 Statin Trials (N = 46,675 Women) Shows Relative Risk Reductions Similar to Men



26% reduction in major vascular events (MVEs) for every 39 point reduction in LDL-C

Figure 2. Effects on major vascular events (MVE) per 1·0 mmol/L reduction in LDL cholesterol, subdivided by 5 year vascular risk at baseline and sex
RR=rate ratio.
*** Adjusted heterogeneity test calculated from a Cox model that corrects for non-sex differences**

Lancet Volume 385, Issue 9976, 2015, 1397–1405

Treat All High-Risk Women With Statins

ACC/AHA 2013 Cholesterol Treatment Guideline

Women's Health Council of RI

Adults age > 21 yrs and candidates for statin therapy

Clinical ASCVD

- **High Intensity Statin** (or Moderate, if not candidate) — IA
- **Moderate Intensity Statin** — IA

LDL-C ≥ 190 mg/dl*

- **High Intensity Statin** (or Moderate, if not candidate) — I B

* + lower LDL by ≥50% = IIa

*After secondary causes ruled out

DM Age 40-75 LDL 70-189

- **Moderate Intensity Statin** — I A
- **High Intensity Statin** If 10-Yr ASVD Risk > 7.5% — IIa B

* Heart healthy lifestyle habits are the foundation of prevention

American College of Cardiology Foundation

American Heart Association. Learn and Live

Stone, NJ et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to reduce Atherosclerotic Cardiovascular Risk in Adults. Published online in Circulation November 12, 2013.

Know Intensity of Fixed Statin Doses

ACC/AHA 2013 Cholesterol Treatment Guideline

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High Intensity	Moderate Intensity
Lowers LDL-C by ~ ≥ 50%	**Lowers LDL-C by 30-50%**
Atorvastatin 40 – 80 **Rosuvastatin 20** – 40	**Atorvastatin 10** – 20 **Rosuvastatin** 5 - **10** **Simvastatin 20 - 40** **Pravastatin 40** - 80 **Lovastatin 40** Fluvastatin XL 80mg **Fluvastatin 40 2x** Pitavastatin 2-4 mg

Note: All doses in mg/day.
Statins and doses in bold were evaluated in RCTs.

Stone, NJ et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to reduce Atherosclerotic Cardiovascular Risk in Adults. Published online in Circulation November 12, 2013.

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American Heart Association. Learn and Live

Discuss Statins if 10-Yr Risk Is ≥7.5%

ACC/AHA 2013 Cholesterol Treatment Guideline

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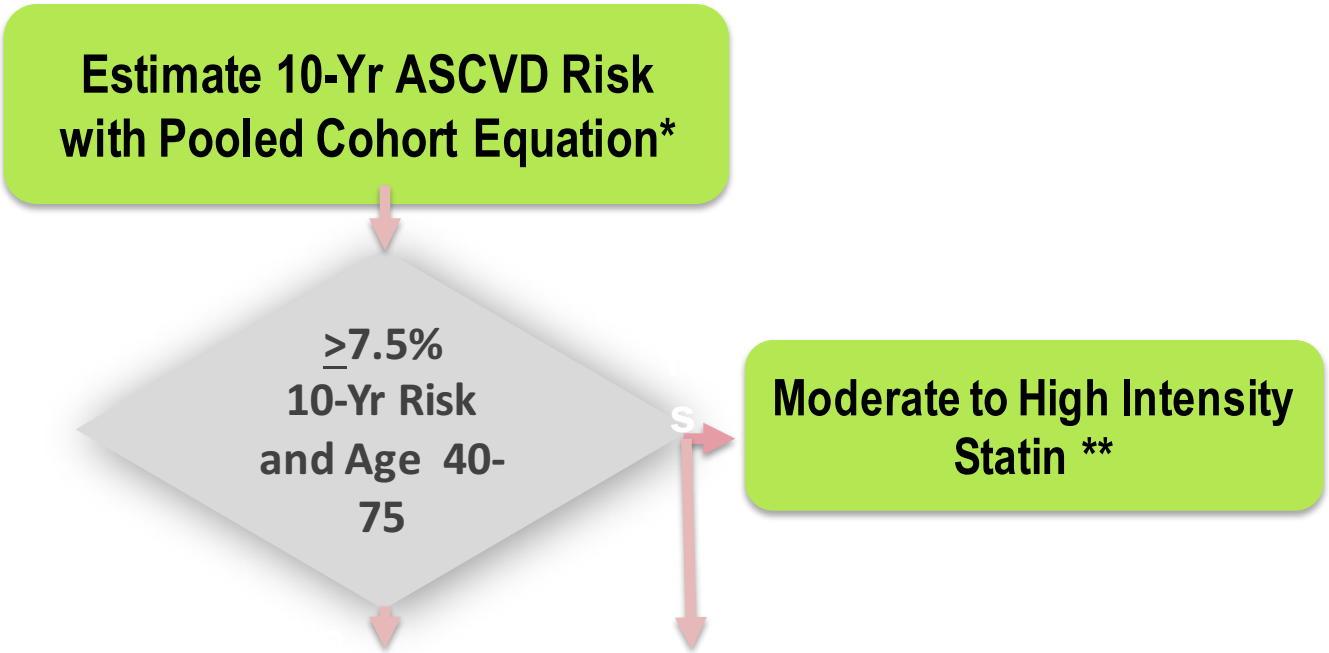

- Always discuss potential risk-benefits, adverse effects, drug-drug interactions, and patient preferences (Class IIa)
- **Consider that statins may benefit primary ASVD prevention** with 10 Year Risk 5% to <7.5% (Class II-a)
- **Consider additional factors** influencing ASCVD risk in those with risk <5% or outside ages 40-75 (Class II-b)

Stone, NJ et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to reduce Atherosclerotic Cardiovascular Risk in Adults. Published online in Circulation November 12, 2013.

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Other Factors Useful in Decision to Treat Primary Prevention Women with Statins

ACC/AHA 2013 Cholesterol Treatment Guideline

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- Elevated lifetime risk of ASCVD
- Primary LDL-C ≥ 160mg/dl
- Family history of premature ASVCD
- Elevated hsCRP ≥ 2mg/L
- Elevated CAC score ≥ 300 AU
- Abnormal ABI < 0.9

Subclinical ASVD

Gender-Specific ASCVD Risk Factors Unique to Women

Effectiveness-based Guidelines for CVD Prevention in Women

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- Early menopause (Natural or TAH-BSO)
- Pre-Eclampsia
- Pregnancy Induced HTN
- Rheumatoid Arthritis
- Systemic Lupus
- Turner Syndrome

1. Gordon, T, Kannel, WB et al. Menopause and CHD. The Framingham Study. Ann Int Med 1978;89:157-161.
2. Colditz, GA et al. Menopause and the risk of CHD in women. NEJM 1987;316:1105-10.
3. Mosca. L et al. Effectiveness-based guidelines for the prevention of cardiovascular disease in women-2011 Update JACC 20111;57:1404-23.
4. Pinsker, JE. Turner syndrome. Updating the paradigm of clinical care. J Clin Endocrinol Metab 2012;97:E994-E1003.

Manage Safety and Side Effects in Women Taking Statins

ACC/AHA 2013 Cholesterol Treatment Guideline

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Step	COR	LOE
Regularly monitor for **new-onset DM2** on statin	I	B
Measure CK in those with **muscle symptoms; if severe, check UA myoglobin and Cr**	IIa	C
For mild-moderate muscle symptoms hold statin, and evaluate for: thyroid disorders, **poor hydration, vitamin D deficiency**, PMR, steroid myopathy, or primary muscle disorder	IIa	B
Once symptoms resolve, re-challenge with **lower or alternating dose** of statin, and re-titrate slowly	IIa	B
If symptoms or CK elevation persist, evaluate for non-statin muscle disorders	IIa	B

From: Smith, SC and Grundy, SM. 2013 ACC/AHA Guideline Recommends Fixed-Dose Strategies instead of Targeted Goals to Lower Blood Cholesterol. JACC 2014;64(6):601-12.

Targeting Medication Non-Adherence

Evidence-Based Individual Approaches

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Intervention

- Set Goals
- Establish Self-Monitoring
- Provide Regular F/U
- Provide Feedback
- Increase Self-Efficacy
- Use Motivational Interviewing
- Use Individually Tailored Education/Materials

Source: AHA Heart Disease and Stroke Statistic Update, 2015

Stuart-Short, EM et al. Behaviorial strategies for CV risk Reduction in diverse and underserved racial/ethnic groups. Circulation 2012;125:171-84.

Targeting Medication Non-Adherence

Evidence-Based Systems Approaches

- Electronic systems for scheduling
- EHRs for tracking control/adherence
- EHR-based patient portals
- Mobile health technologies
- Practical toolkits
- Provider training and education
- Integrated systems with team-based care and continuous QI processes

All support population management of CVD risk

Source: AHA Heart Disease and Stroke Statistic Update, 2015

Utilize Health IT To Support Provider and Team-Based Population Management of CVD Risk

Lessons from Large Integrated HC Systems

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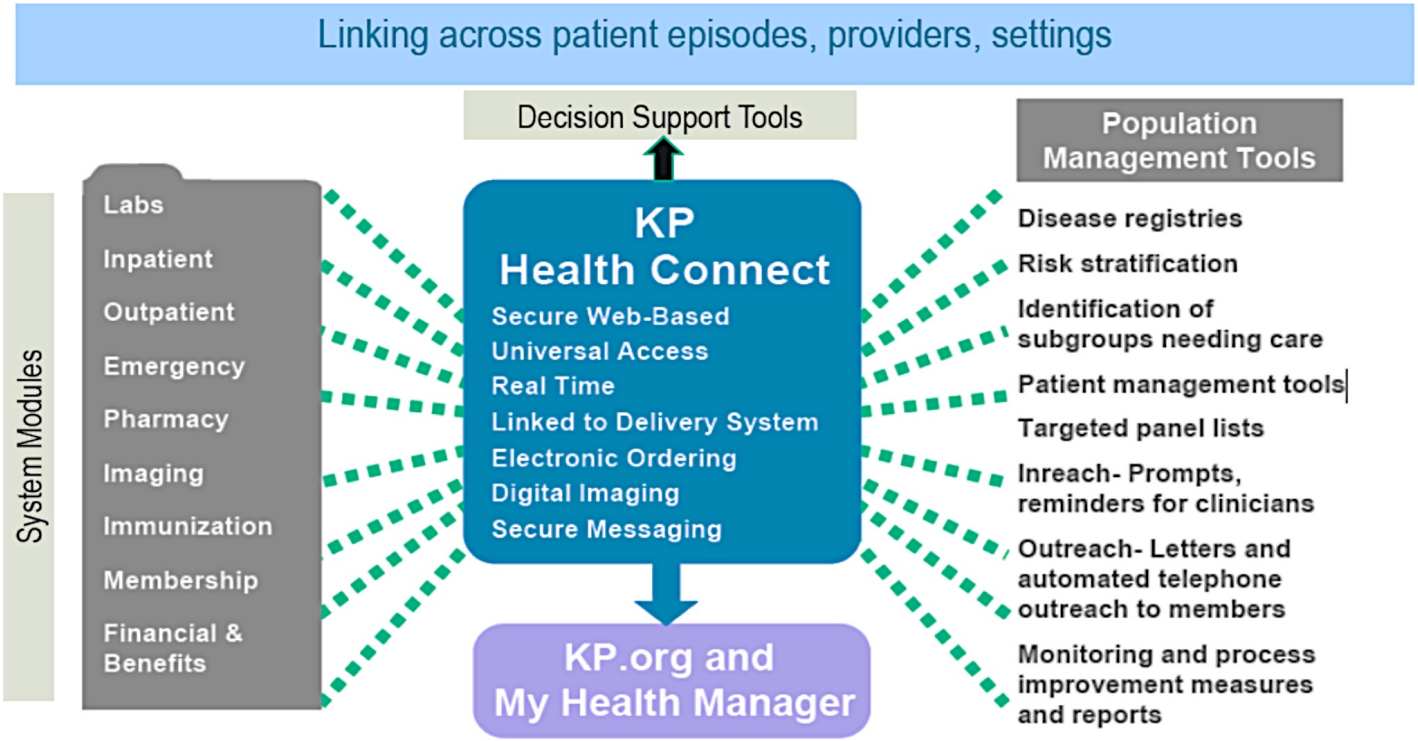

KAISER PERMANENTE®

McCarthy, D et al. Kaiser Permanente: Bridging the quality divide with integrated practice, group accountability and health information technology. The Commonwealth Fund 2009 - Publication 1278.

Graphic courtesy of Walter Suarez, MD, MPH, Executive Director, Health IT Strategy and Policy, Kaiser Permanente, August 2013.

Summary

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- Despite large declines in total CVD mortality in the last decade, unfavorable trends exist for women
- Larger proportions of CVD events could be prevented by reducing the large burden of modifiable risk factors
- Gender specific issues related to risk from BP and cholesterol exist in women
- Data indicate that BP and cholesterol lowering, and ASA use in secondary prevention women, each reduce the RR of CV events by ~ 25-30%
- Data regarding risk/benefits of ASA use in primary prevention are evolving
- The Million Hearts Initiative is a partnership between federal agencies and HCS's to implement these interventions more systematically in health systems and the population

Current Recommendations for Aspirin for Primary Prevention in Women

- **2009 USPSTF**
  - Consider in women age 55-79 when risk of ischemic CVA is greater than risk of GI bleeding
- **2012 American College of Chest Physicians**
  - Consider in all after age 50, after considering risks/benefits
- **2010 AHA/ACCF/ADA**
  - Consider in diabetics with 10 Year risk > 10% in whom bleeding risk is not increased
- **2014 U.S. FDA**
  - Use individualized and shared decision making

Total Cardiovascular Mortality in the U.S.

Declines for Women Since 2000

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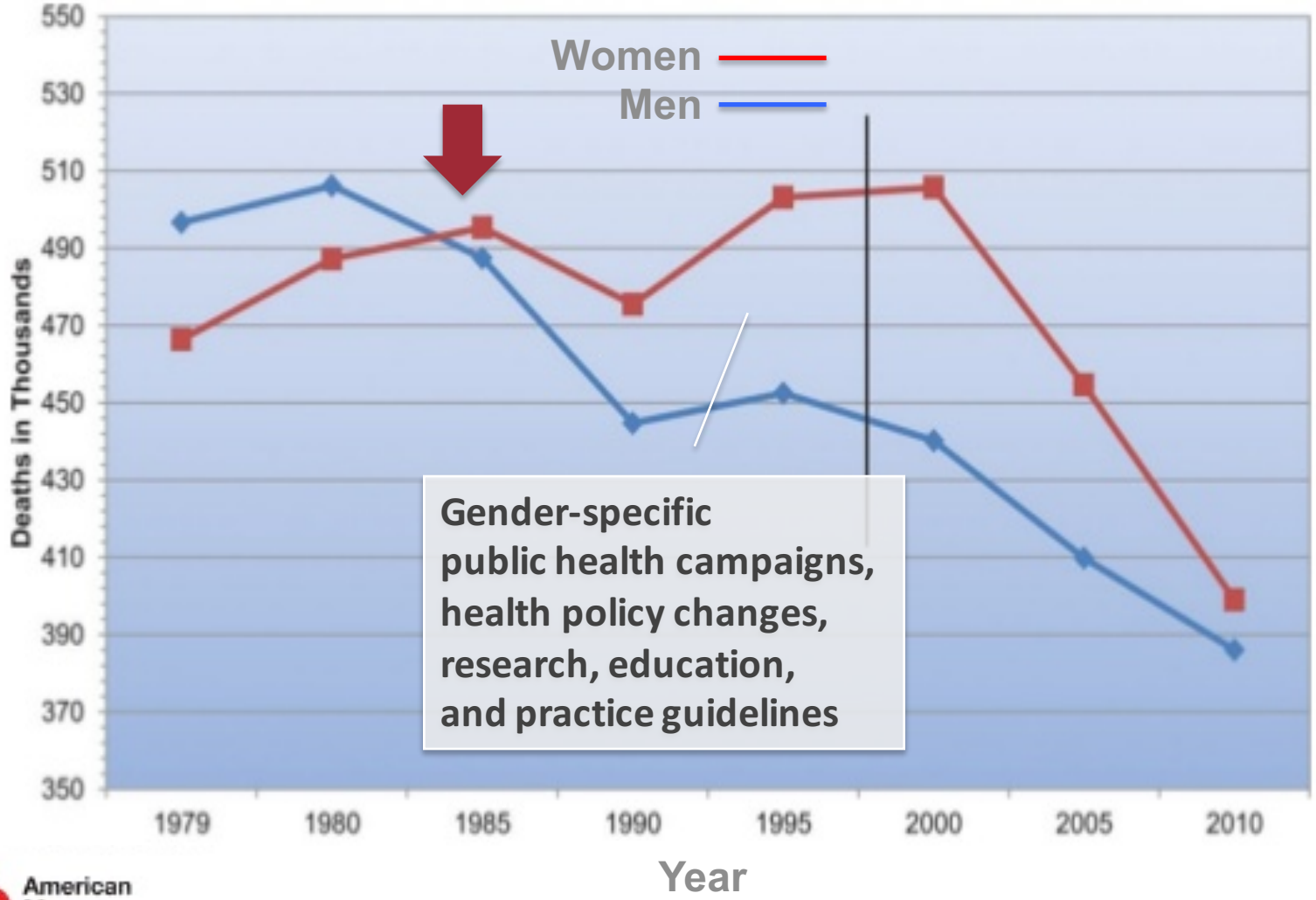

American Heart Association.

Go, A et al. Circulation 2014;129:e28-e292.

Aspirin for Primary Prevention of CVD

2012 Meta-Analysis of 9 Trials

Subjects 102,621 Subjects No CVD Age=57 Women=54%

Designs ASA 75-500 mg/day vs. Control - F/U ~ 6 Years

Baseline CV Risk 10 year risk ~ 14%

Efficacy and Safety

- Subgroup Analysis No differences between M vs. F
- Odds Ratio Total CVD 0.90 (95% CI, 0.85-0.96) NNT 120
- Odds Ratio Non-fatal MI 0.80 (95% CI, 0.67-0.96)* NNT 162
- Odds Ratio Stroke 0.94 (NS)
- Odds Ratio Death 0.99 (NS)
- Odds Ratio Bleeding** 1.31 (95% CI, 1.14-1.50) NNH 73

Conclusions Individualize ASA use; Re-evaluate guidelines

* But NS in trials published after 2000; **Non-trivial bleeding
NNT = number needed to treat
NNH = number needed to harm

Seshasai SR et al.
Arch Intern Med. 2012;172(3):209.

Intensive Treatment of Lipid Disorders To Optimize ASCVD Risk in High-Risk Women

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Intensive LDL-C and Non-HDL-C Reduction

- New data support a lower LDL-C of < 60mg/dl
- Options: Intensify statin
  Add ezetimibe (IMPROVE IT Trial, 2014)

- Data support a non-HDL-C < 100 mg/dl
- Target Non-HDL-C (= TC – HDL-C) when TGs are ≥ 200
- Options: Intensify potent statin
  Add ezetimibe
  Add fenofibrate, *if* TG >250 + HDL-C ≤ 32 mg/dl

Accord Study Group. NEJM 2010;362:1563-74.

Current Lipid Treatment Guidelines

Guideline Source	Recommended Targets
NCEP-ATP III	Primary: LDL-C Secondary: Non-HDL-C
International Atherosclerosis Society	LDL-C or Non-HDL-C
European Society of Cardiology	Primary: LDL-C Secondary: Non-HDL-C or Apo-B
Canadian Cardiovascular Society	Primary: LDL-C Secondary: Non-HDL-C and Apo-B
American Association of Clinical Endocrinologists	Primary: LDL-C Secondary: Non-HDL-C, Apo-B, LDL-P
AHA/American Diabetes Association	Secondary: Apo-B
AHA/ACC Secondary Prevention	Primary: LDL-C Secondary: Non-HDL-C
National Lipid Association	Primary: LDL-C Secondary: Non-HDL-C
AHA/ACC 2013 Cholesterol Treatment	None
Kidney Disease IGO Group	None

Morris, PB et al. Review of Clinical Practice Guidelines for the Management of LDL-related Risk JACC 2014;64:196-206.

Aspirin Use in Primary Prevention Women

Women's Health Council of RI

2009 Data Suggest Net Benefits Depend on ASCVD Risk

- 2009 Meta-Analysis from Anti-Thrombotic Trialist's of **six primary prevention trials (including WHS)** with >95,000 M and W showed proportional reductions in CV risk on ASA differed slightly in women
  - RR Major CHD Event 0.95 (NS) [significant in men]
  - RR Ischemic Stroke 0.77 (95% CI, 0.59- 0.99))
  - RR Vascular Event 0.88 (95% CI, 0.76 - 1.01)
- Modeling showed net benefit depended on ARR for a CV event vs. absolute risk of bleeding
  - Benefits exceeded risks only if 10 Yr risk > 20%

ASCVD Risk Estimation Needed !

Antithrombotic Trialist's Collaboration Lancet 2009;373:1849-60

Aspirin Use in Primary Prevention Women

Women's Health Council of RI

Newer Data Suggest ASA Risks > Benefits in Most

- 2012 Meta-Analysis of previous 6 + 3 newer ASA trials with >102,000 M and W (54% women) with mean age 57 showed proportional reductions in CV risk on ASA did NOT differ in women and men
  - Odds Ratio Total CVD 0.90 (95% CI, 0.85-0.96) NNT 120
  - Odds Ratio Non-fatal MI 0.80* (95% CI,0.67-0.96) NNT 162
  - Odds Ratio Stroke 0.94 (NS)
  - Odds Ratio Death 0.99 (NS)
  - Odds Ratio Bleeding** 1.31 (95% CI, 1.14-1.50) NNH 73
- Net risks exceeded benefits in all, BUT elderly underrepresented

Seshasai SR et al.
Arch Intern Med. 2012;172(3):209.

* But NS in trials published after 2000; **Non-trivial bleeding
NNT = number needed to treat NNH = number needed to harm

Treating Cholesterol to Optimize Cardiovascular Health in Women

Women's Health Council of RI

General Concepts

- Prevalence of hyperlipidemias in the U.S. is high
- Magnitude of relative risk from elevated TC = 4-5 fold
- Accounts for up to 50% of acute MIs
- Primary disorders may be monogenic or polygenic
- Secondary causes are less common
- Lifetime exposure = 'cholesterol life-years'
- Large evidence base supports treatment
- Large treatment gaps exist

Treating High Blood Pressure to Optimize Cardiovascular Health in Women

Women's Health Council of RI

General Considerations

- Very prevalent, affects 2 out of 3 over age 65
- Strong, graded relationship to CV M&M
- Each 20/10 mmHg Increase in S/DBP doubles CV risk*
- Leading cause of CVA, CHD, CHF, arrhythmia, CKD
- TOD d/t shear, endothelial injury, vascular remodeling
- Large evidence base supports treatment
- Large treatment gap – only ~ 50% are controlled

TOD = target organ damage

*In individuals < 69 years