



Women and Heart Disease

Somerset Medical Center Women's Health Summit

Ap22.2010

Presenter: Bonnie Arkus, RN, WHF Exec Director and Founder

Grateful acknowledgement to Sanofi-aventis for sponsoring this presentation and to Phyllis and Somerset Medical Center for inviting me to this event. Also, thanks to Dr. Abraham Bornstein, Dr. Barbara Roberts and Dr. Fred Seinfeld for contributing to this presentation, with acknowledgement also to The HEART Truth and American Heart Association

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History of the Women's Heart Movement

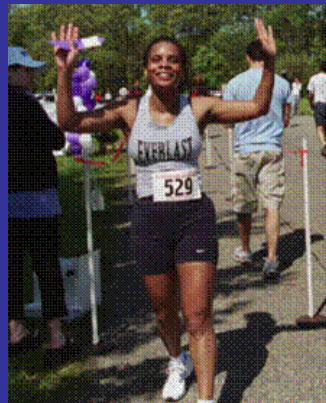
- May 1986- My 60 y.o. mom died after open heart bypass surgery.
- 1987-88 - I began speaking out to friends, family about inequities in women's care. Local women cardiologists called and implored I go public with message
- Nov 1988 – met with NOW, congressmen and senators, lobbyist. Wrote to editor of Washington Post, Philadelphia Enquirer
- Oct 1989 – co-founded the southern Mercer County chapter of AHA
- Mar 1992 – conducted conference calls with leaders of NIH about imminent plans to start a new heart organization for women. Began letter-writing campaign to pharmaceutical industry, supported by Quaker Friends. Introduced a new logo representing women and heart disease and incorporated June 6 same year as Women's Heart Research Foundation.
- 1992-2000- launched new programs. Founded Women's Heart Week in 1994. Authored website based on 1992 NIH symposium on women & heart health, Nanette Wenger, MD, Chair
- 1994 –I was keynote presenter at Cleveland Clinic Foundation symposium- 500 nurses
- 2001 –DHHS NIH NHLBI announced The HEART TRUTH campaign.
- 2002 – DHHS introduced the Red Dress as new symbol for women and heart disease
- 2003 – WHF Partnered with the RWJUH to host Women's Heart Week. Attended by 900
- 2003 – U. S. Congress passed a resolution recognizing Feb 1-7 Women's Heart Week
- 2004 – GO RED for Women – AHA launch





Our Programs and Services

- www.womensheart.org website and E-news
- Women's Heart Week and Red Dress Luncheon
- 'Run for Mom' Mother's Day 5K - Mercer Cty Pk
- Teen Esteem health and fitness at Trenton High
- The Gender Care Initiative®





WOMEN'S HEART FOUNDATION

improving survival and quality of life


- Heart Care Guides
 - Exercise & Nutrition
 - Wellness
 - Heart Disease
 - Heart Surgery
 - Ask the Nurse
 - PDF Library
 - Glossary
 - Links



- Heart Care Products
- Programs & Events
- Heart Care Partners

- About WHF
- Health Professionals

Ask the Nurse
Email Your Questions
[Click Here](#)



OUR MISSION

Women's Heart Foundation, a 501c3 and the only non-governmental organization that implements heart disease prevention projects, is a coalition of executive nurses, civic leaders, community health directors, hospitals, women's heart centers, partners, providers and corporate sponsors responding to the health crisis of women's heart disease and the urgent need for prevention programs. WHF advocates for women and supports early intervention and excellence of care of women.



WHAT'S NEW

- [Click here](#) to **Find a HEART Friend**
- [Click Here](#) to **support WHF by shopping on ebay**
A percentage of your purchases will benefit WHF
- Hundreds Run and Walk at WHF's Annual Mother's Day 'Run for Mom' in support of prevention programs to wipe out heart disease in women. [Click here](#) to go to press release. [Click here](#) to view Race Scores
- WHF to present July 31 at the 15th Biennial School Nurses International Conference on "Creating Wellness Programs in Schools". [Click here](#) to download conference brochure (*conference is sold out*)

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Overview

- The HEART Truth
 - Statistics
 - How heart disease differs in women
- Signs and Symptoms in Women
- Diagnostic Testing
- Healthcare Reform and Women's Heart Health
- Taking Care of Ourselves









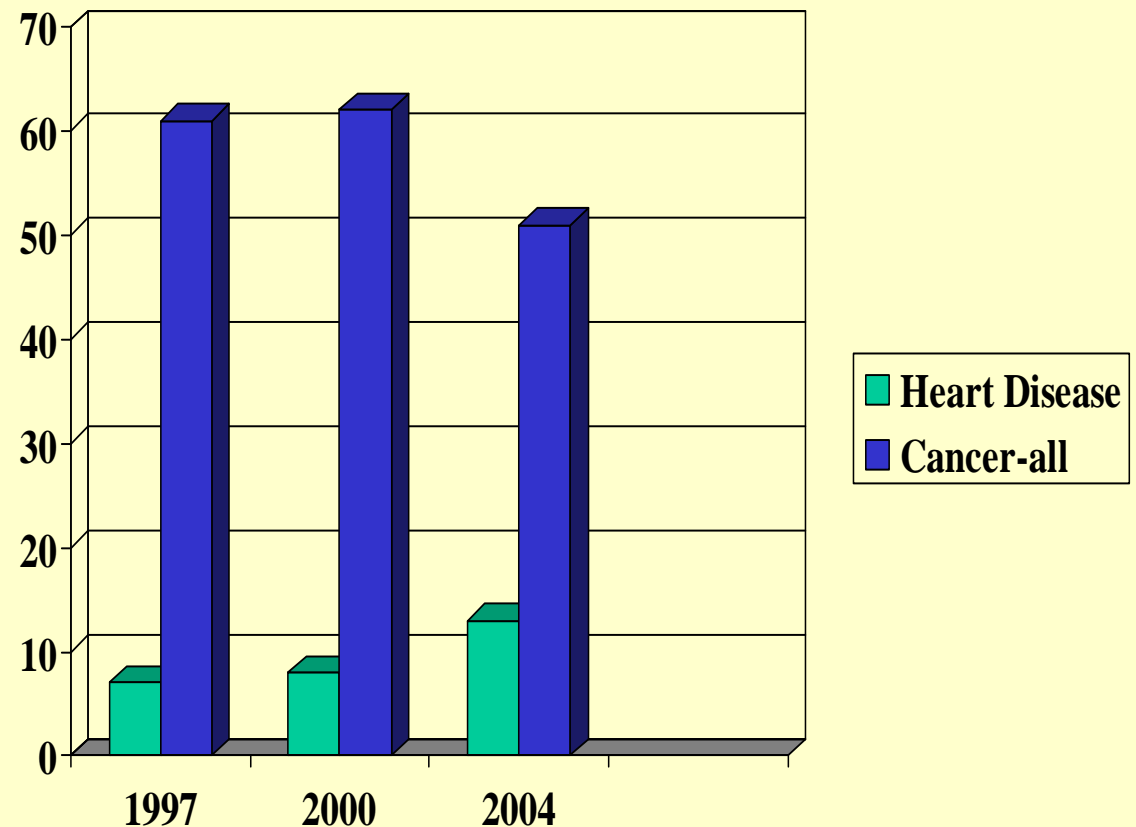
Perception: The Greatest Health Threat?

Most women still believe it's Cancer

Awareness of heart disease (CVD) has increased, although a significant gap between perceived and actual risk remains.

Educational interventions to improve awareness and knowledge are needed, particularly for minority and younger women.

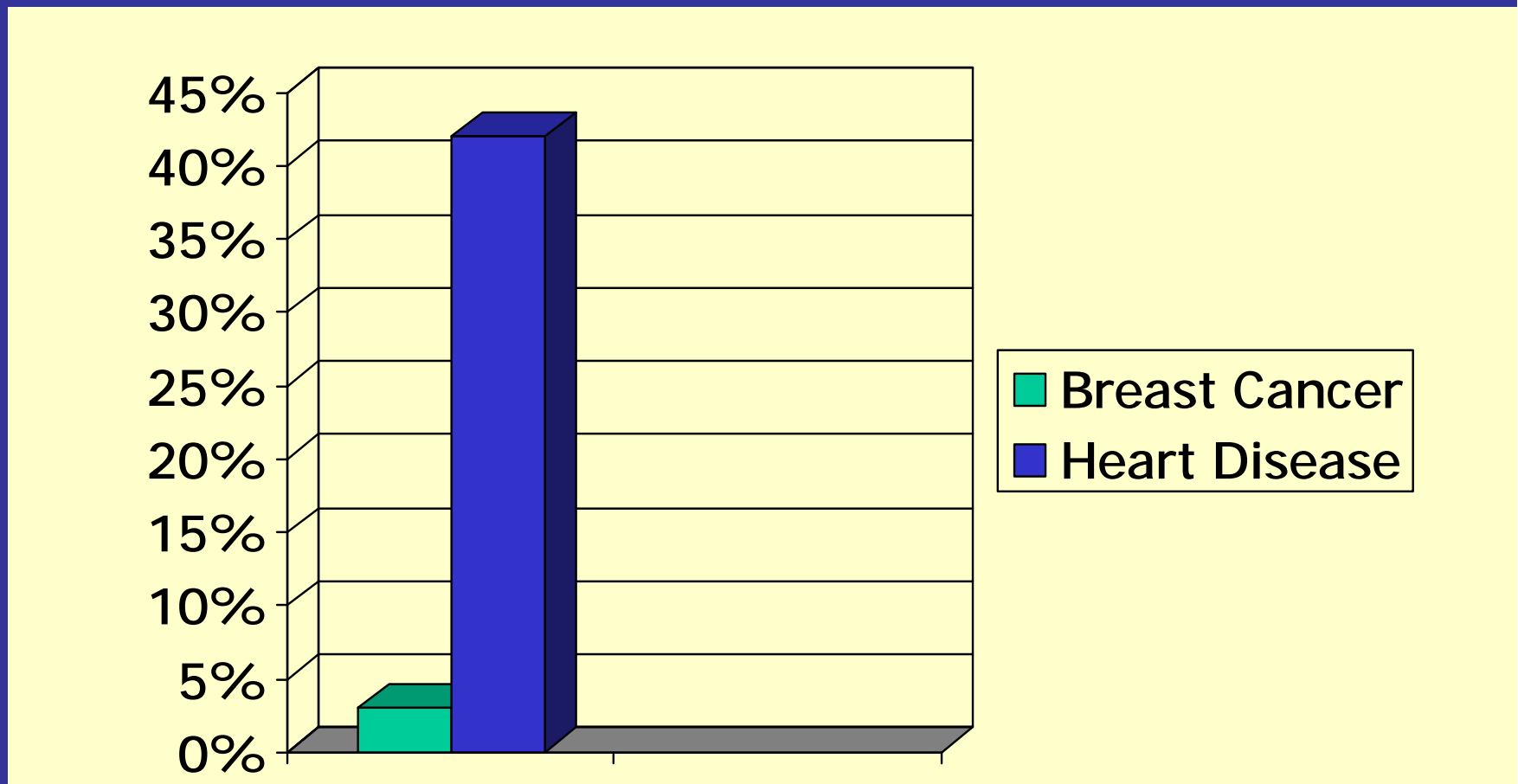
– Mosca et al. Circ2004





Reality

Cause of Death - Percentage of All U.S. Female Deaths 1999





What We've Learned About Women, Heart Disease and Stroke

- Heart disease and stroke can strike women at any age.
- The processes that lead to coronary heart disease, heart attack and stroke start when a woman is young and develop over time.
- These diseases are largely preventable, with changes in lifestyle.

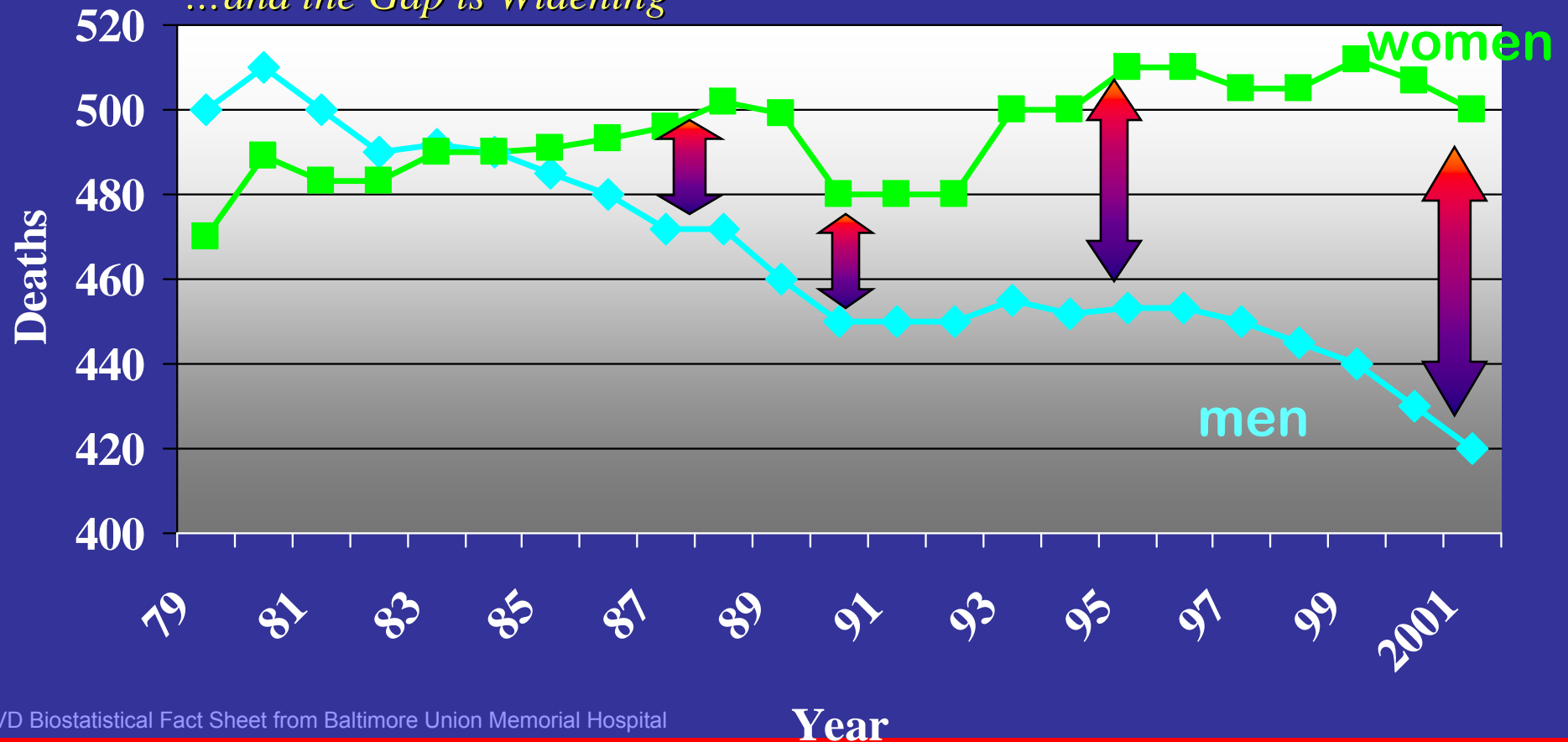






More Women than Men Die From Cardiovascular Disease

...and the Gap is Widening





Breast Cancer

- One in 27 women will die of breast cancer

Cardiovascular Diseases

- Almost one in every two deaths of women is from CVD





African American Women are especially at Risk



The age-adjusted rate of heart disease for African American women is 72% higher than for white women, while African American women ages 55-64 are twice as likely as white women to have a heart attack and 35% more likely to suffer CAD.





1,100,000 Coronary Attacks Each Year

- Nearly 40% will occur in women
- Nearly half of deaths will occur in women
- Women more likely than men to die within one year of recognized heart attack
- 7 million deaths from heart disease globally each year





Women Unaware of Heart Disease Risks + Symptoms

- Only 8% of women surveyed identified heart disease as their greatest health concern
- 33% identified heart disease as the leading cause of death in women
- Despite reporting they were “knowledgeable” about heart disease, low level of awareness of warning signs of a heart attack and risk factors
 - AHA survey of 1,000 women





Diagnosis of Coronary Artery Disease

- Medical history
- Physical examination
- Diagnostic tests





Diagnosis of Coronary Artery Disease

- Stress echocardiography
 - In multiple studies, sensitivities range from 31-90% and specificities range from 46-98%
 - With experience, sensitivities exceed 70% and specificities exceed 85%
 - In women, diagnostic accuracy is reported as low as 10.3 -64.4%, when considering the combined poor diagnostic accuracy of the stress EKG
 - Up to 27% of women are not suitable candidates for conventional stress testing modalities
 - Many women of Medicare age undergo evaluation utilizing multiple stress modalities but are frequently misdiagnosed
 - Diagnostic accuracy is reduced by rapid decrease of heart rate between cessation of exercise and acquisition of LV images



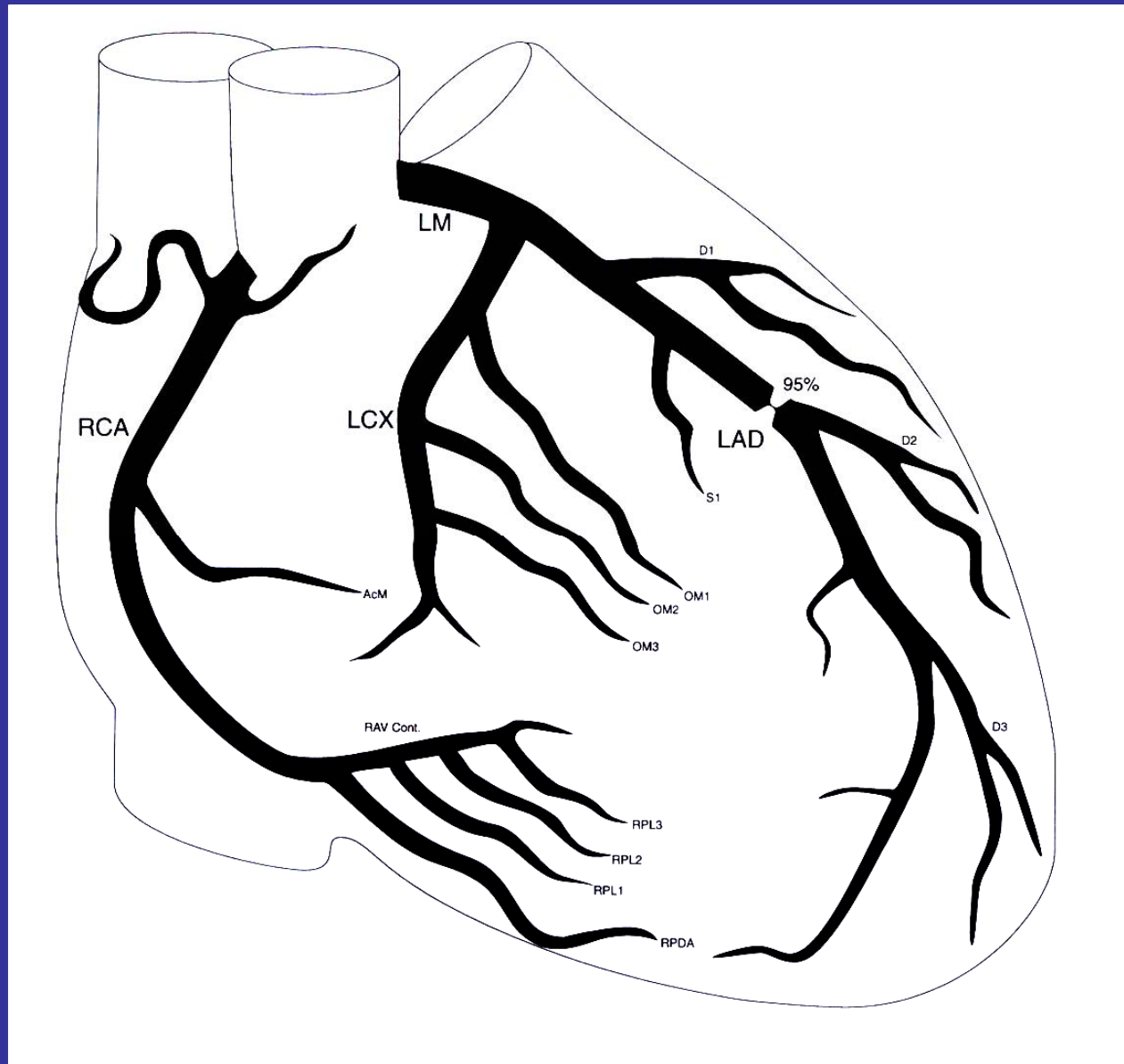


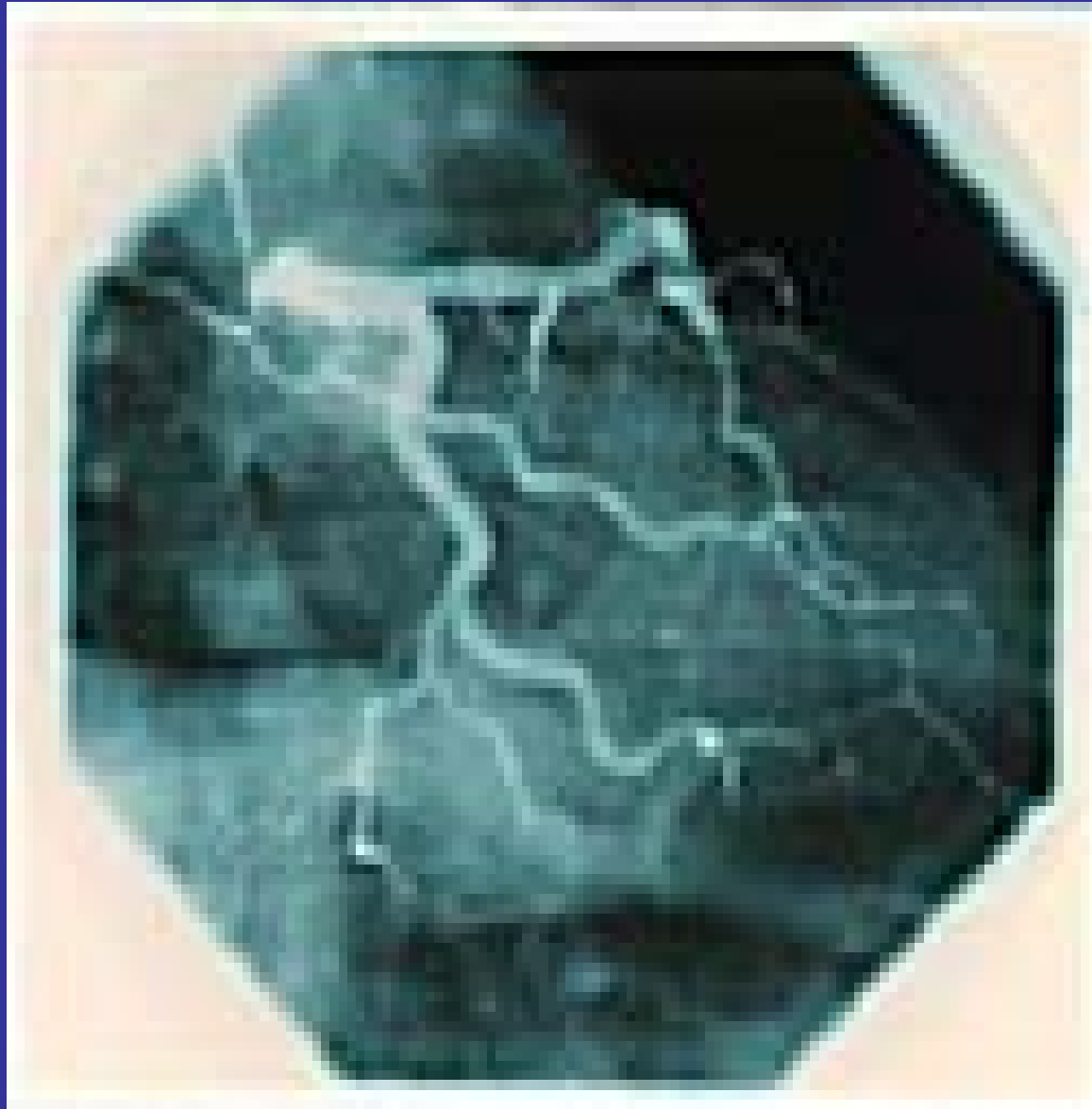
Diagnosis of Coronary Artery Disease

- Resting EKG alone
 - Significantly less sensitive and specific than stress EKG
 - Poor sensitivity in the detection of single vessel disease
- Stress EKG alone
 - Clinically has 50-60% sensitivity and considerable gender bias
- Myocardial perfusion scintigraphy
 - Sensitivity 44-89% and specificity 89-94% for 2+ vessel disease, but much less for single vessel disease
 - Combination of stress EKG with myocardial perfusion scintigraphy using multivariate analysis provides only limited improvement of diagnostic accuracy
- Coronary angiography –the “Gold Standard” being misinterpreted in women











Diagnostic Tests for Stroke

- Laboratory tests
- Imaging tests
- Tests to show brain's electrical activity
- Tests to evaluate blood flow in carotid arteries





Tests To Evaluate Blood Flow

- Doppler ultrasound
- Digital Subtraction Angiography
- Magnetic Resonance Angiography (MRA)
- Computerized Tomographic Angiography (CTA)





Care and Treatment

- Prevention
- Medicine
- Invasive procedures
- Surgery
- Recovery and rehabilitation





Risk Factors for Heart Disease You Can Control

- Smoking
- High blood cholesterol
- High blood pressure
- Physical inactivity
- Obesity
- Diabetes









What Blood Pressure Numbers Mean

Pressure (mm Hg)	Optimal	Normal	Borderline	Hypertension
Systolic (top number)	< 120	120-130	130-139	140+
Diastolic (bottom number)	< 80	80-85	85-89	90+

mm Hg = millimeters of mercury

Source: American Heart Association





Women at Risk of High Blood Pressure

- Family history and race
- Taking oral contraceptives
- Age of menopause*
- During pregnancy
- Overweight

Abstract from Elsevier Journal of Clinical Epidemiology <http://linkinghub.elsevier.com/retrieve/pii/S0895435696004258>

We examined the relationship between age at natural menopause and mortality of ischemic heart disease in 19,309 Norwegian postmenopausal women. A total of 2767 fatal infarctions occurred during 29 years of follow up. Overall, a relatively weak inverse relationship was seen with approximately 10% lower ischemic heart disease mortality in women aged ≥ 47 years at the menopause compared to women with an early menopause (< 44 years). Risk estimates were similar for women aged 47 and more at menopause. However, the inverse relationship was stronger and statistically significant ($p = 0.01$) in women aged less than 70 years. In this group of women, we observed a nearly 60% reduction in the ischemic heart disease mortality in women with a late menopause (≥ 53 years) compared to women aged < 44 years at menopause (mortality rate RATIO = 0.42; 95% confidence interval 0.25-0.72). This protective effect of a late menopause is reduced with advancing age, however, and is of minor significance in the age groups where the great proportion of the ischemic heart disease deaths occur.





Metabolic Syndrome Indicators for Women

— *having at least 3 of a cluster of signs places you at risk*

- High blood sugar >100 mg/dL after fasting
- High triglycerides - at least 150 mg/dL
- Low HDL (<50 mg/dL in women)
- Blood pressure of 130/85 or higher
- Waist >35 inches. (Waist measurement of 35 inches or more or waist-to-hip ratio greater than 0.80 is a predictor of high triglycerides and low HDL levels)





Women at Higher Risk Due to Body Fat – Are you an Apple or a Pear? Apple-shaped are at higher risk

- Waist circumference of 35 inches or greater
- Overweight defined as body mass index (BMI) of 25–29.9
- Obesity defined as body mass index (BMI) of 30 or greater





What Cholesterol Levels Mean

Cholesterol	Desirable	Borderline-	High Risk
Total cholesterol	Less than 200	200-239	240+
LDL ("bad")	Less than 130*	130-159**	160+
HDL ("good")	35 or higher for men 50 or higher for women	Less than 35 Less than 50	

Mg/dL = milligrams per deciliter of blood

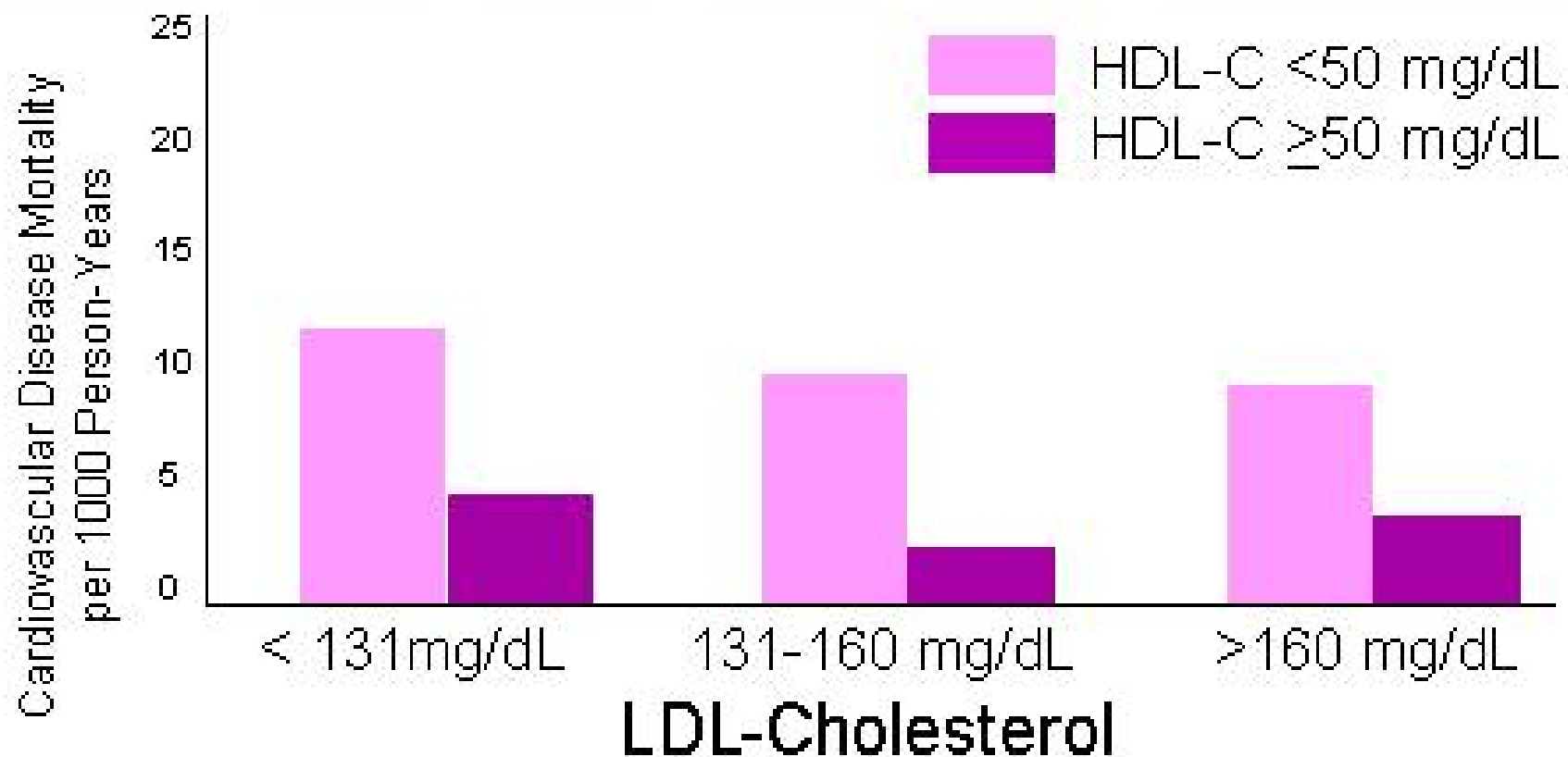
* LDL cholesterol greater than 100 mg/dL or less is optimal in women who already have heart or blood vessel disease.

** LDL cholesterol greater than 100 mg/dL is higher than optimal in women who already have heart or blood vessel disease.

Source: American Heart Association



Age-adjusted Cardiovascular Disease Mortality in Women: Lipid Research Clinic Follow-Up



At all levels of LDL-C, CVD mortality rates in women with low HDL-C levels were 3 to 4 times greater compared with women with high HDL-C levels





Diabetes Is a Fasting Blood Sugar of 126 mg/dL or Greater





Women With Diabetes Have Higher Risk

- From 3 to 7 times the risk of heart disease and heart attack
- Much greater risk of stroke
- Double the risk of second heart attack
- Often have high blood pressure and high blood cholesterol, increasing risk

AHA Medical/Scientific Statement—

Cardiovascular Disease in Women, 1997





Know Your Numbers – What's Important*

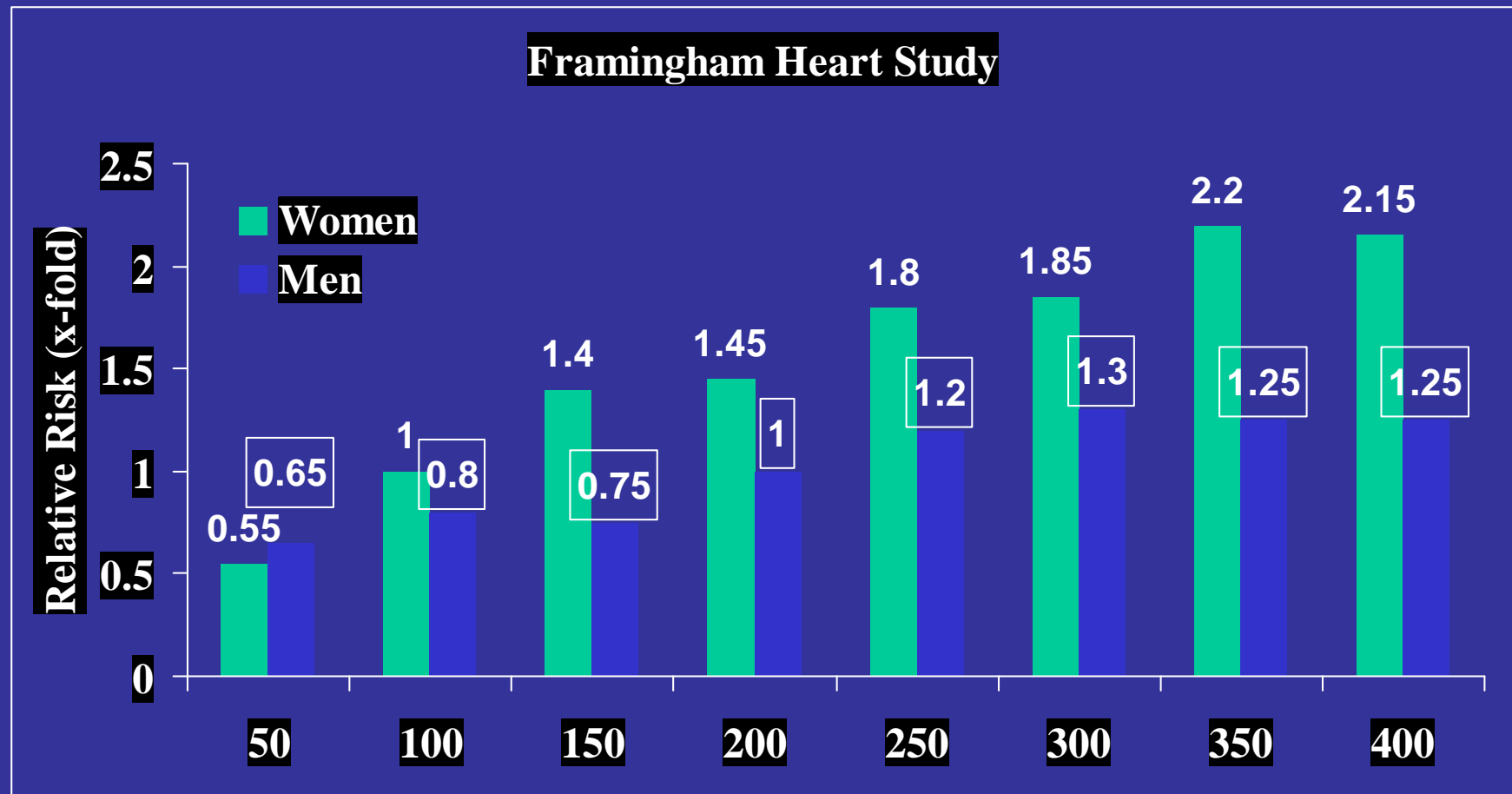
- Pre-meal fasting blood sugar levels: 80-130
- Post-meal blood sugar levels: 180 at 1-2 hours after a meal
- Blood sugar levels should return to normal (70-110) at four hours after eating)
- Hemoglobin A1c – the red blood cells reveal blood sugar levels over a two-month period: 7 or below (new guidelines: 6.5)

*Based on ADA 2004 Clinical Practice Guidelines





Impact of Triglyceride Levels on Relative Risk of CAD



Castelli WP. *Can J Cardiol.* 1988;4 Suppl A:5A-10A.





Different Electro-Physiologic Substrate - *clinical implications for women*

- Resting heart rate is faster
 - QT interval is longer
 - Heart rate variability is different (sympathetic/parasympathetic balance)
 - Different occurrence of arrhythmia + palpitations
 - Anti-arrhythmic toxicity more common in females
- Develop anti-arrhythmic agents that are safe and effective in women
 - Select devices based on optimal hemodynamics -- not gender
 - Better ID of high risk individuals prior to an event
 - Apply different Pacemaker Setting to correspond to women's higher Work Rate-Response Ratio

- Lou-Anne Beaugard, MD, FACC, FACP





Prolonged Q-T Interval in Women

- 2-8 fold more deaths in women affected by certain drugs. Go to www.qtdrugs.org
- 70% of reported cases are women
- It's not only anti-arrhythmic drugs... erythromycin, propulsid, and others
- Effects of grapefruit juice and liquid protein diets when taking certain drugs





Gender Differences in Atherosclerosis

- Women undergoing coronary angiography have more diffuse atherosclerosis measured by IVUS, e.g. more total compromised lumen, adjusted for BSA, throughout the arterial tree compared to men.¹
- Women undergoing coronary angiography have less episodic change segments (fewer peaks and valleys) with less lumen intrusion measured by IVUS, compared to men.¹
- Women with CHD have more acute coronary syndromes (symptoms related to ischemia) compared to myocardial infarctions in men,² and have more plaque *erosion* compared to more plaque *explosion* in men.

¹ S. Nissen, personal communication; ² Hochman et al NEJM 2001;341:226





Warning Signs and Symptoms HEART DISEASE





Angina

- Angina is a symptom indicating that the heart isn't getting enough blood.
- It is usually experienced as chest pressure, tightness or discomfort.
- Angina may be felt only in the center of the chest, or it may move to the shoulders, neck, jaw, arms or back.





Most Common or “Classic” Acute Warning Signs of Heart Attack

- Uncomfortable pressure, fullness, squeezing or pain in the center of the chest that lasts more than a few minutes, or goes away and comes back
- Pain that spreads to the shoulders, neck or arms
- Chest discomfort with lightheadedness, fainting, sweating, nausea or shortness of breath





More Common Warning Signs of Heart Attack in Women

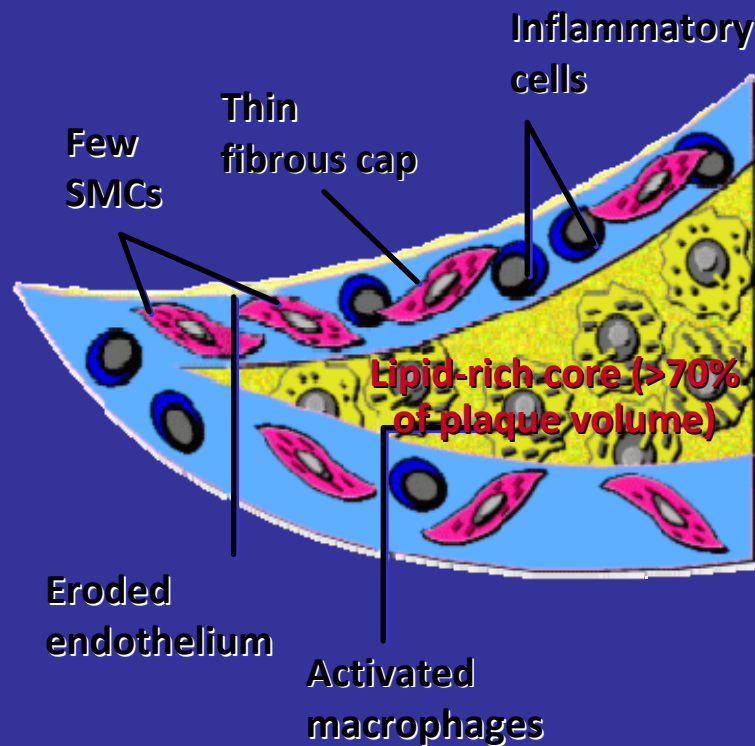
- Mild chest discomfort, stomach or abdominal pain
- Nausea or dizziness
- Shortness of breath and difficulty breathing
- Unexplained anxiety, weakness or fatigue
- Palpitations, cold sweat or paleness



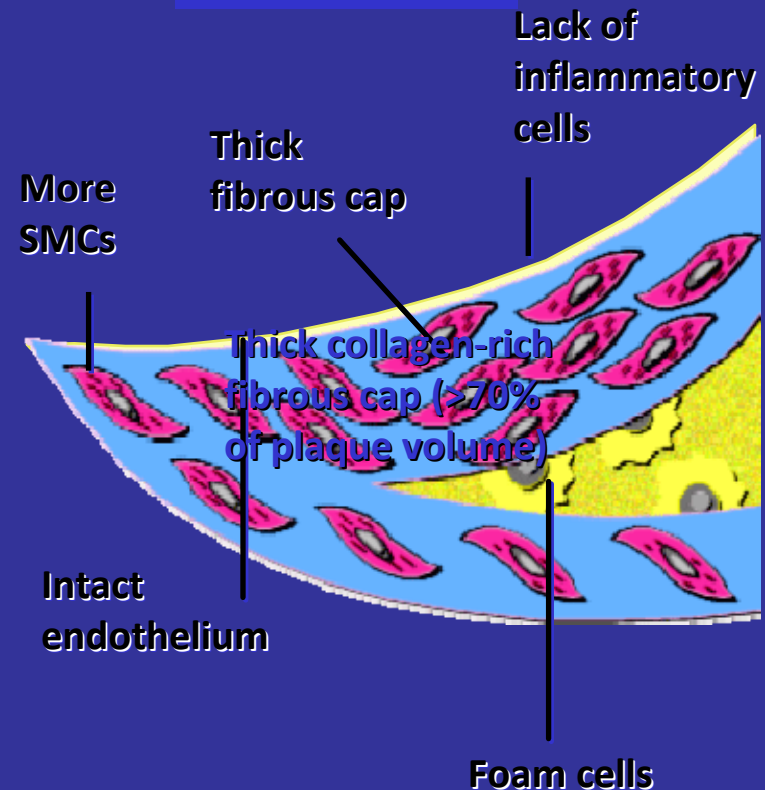


Characteristics of Unstable and Stable Plaque

Unstable Plaque



Stable Plaque



Libby P. *Circulation*. 1995;91:2844-2850





Warning Signs and Symptoms STROKE





Stroke Is a BRAIN ATTACK! *Symptoms to look for ...*

- Sudden numbness or weakness of face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden, severe headache with no known cause





Stroke Is an Emergency!

If you experience one or more stroke symptoms —

- Call 9-1-1 or EMS system
- Go to nearest 24-hour emergency care facility immediately





Diagnosis of Stroke

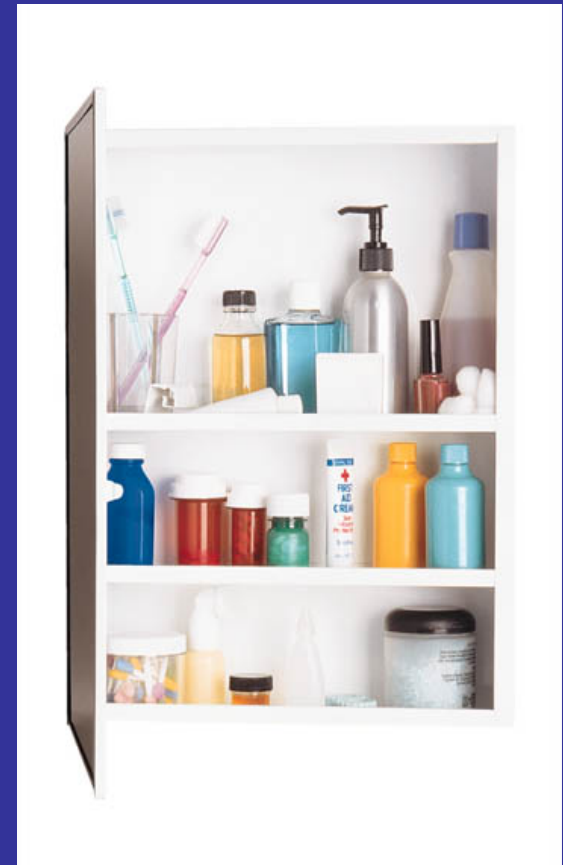
- Medical history
- Physical examination
- Diagnostic tests





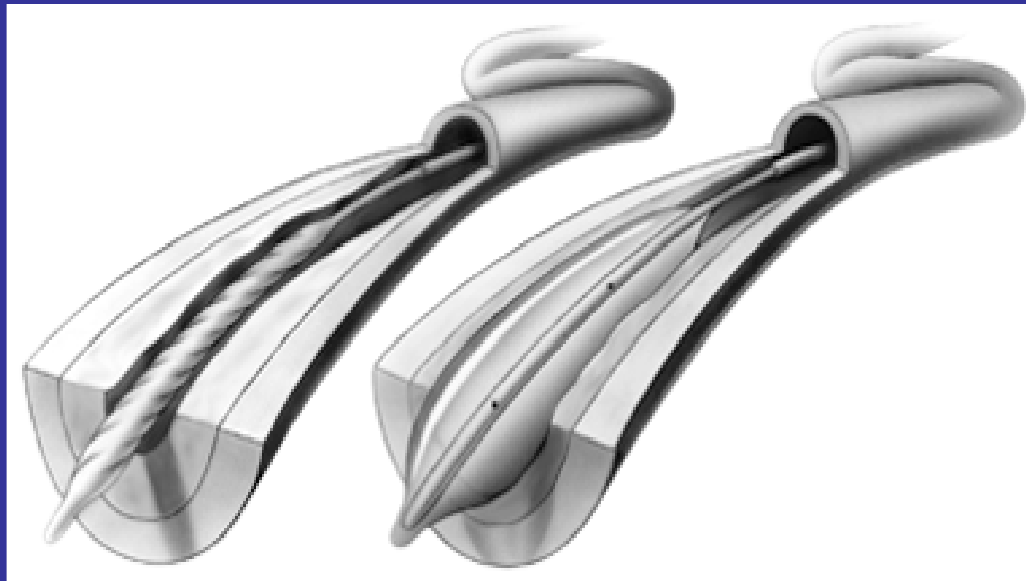
Treatments for Angina (chest pain)

- Medications
- Angioplasty
- Surgery





Coronary Angioplasty







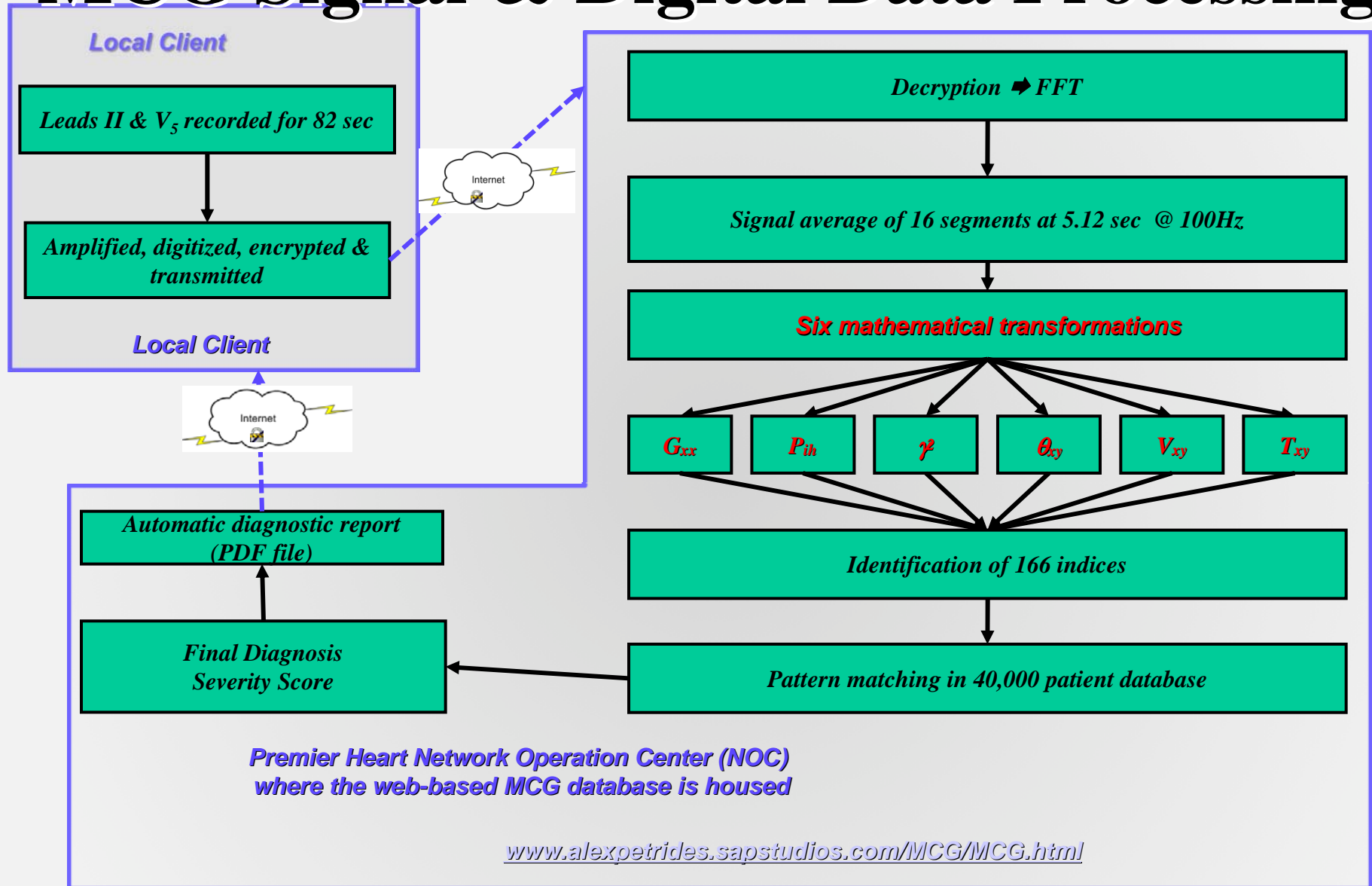
Listen to your heart

- Irregular heart beats and other heart disturbances need to be reported to your doctor and pharmacist promptly
- Examine what you are taking that is different and how this could be affecting your heart
- Eat good source of Omega 3 oil every day (fish oil, flax oil, walnuts, wild-caught fish) as omega 3 fat helps stabilize heart rhythm
- Don't work out with a cold or flu
- Don't strain and hold your breath with exercising





MCG Signal & Digital Data Processing





MCG Portable





Taking Better Care of Ourselves





Bonnie in the Dr. Oz Truth Tube



- Height = 64". Weight = 195#
- BMI 33.5 (Obese)
- Family History Heart Disease
- Waist Measurement = 32"
- Blood pressure 120/74
- HDL 74 LDL 120
- Triglycerides 110
- Fasting blood sugar - 82
- Not exercising 30 min/day
- Chronological Age = 60
- Real Age = 65
- MCG score = 4 - reflecting 2 blockages with local ischemia.





Do adopt a detoxification diet

- Get up early, drink a glass of water and walk 1 mile everyday
- Eat egg whites for breakfast is good. Include fruit with lunch and salad with dinner, and treats in between, from dark chocolate to nuts and seeds to Lara Bar for snacks
- Eat brown rice pasta
- Cook your own tomato sauce, peas and lentils
- Drink alcohol in moderation
- Eat fish several times a week – always wild caught (not farm raised- high in mercury)
- Drink goat milk, goat cheese, coconut milk, almond milk
- Join a gym and do light weights. Do the exercise bike - ride 5 miles at least 4x a week.
- Read for pleasure for relaxation
- Recommended purchase: “The Raw Food Detox Diet” by Natalie Rose
- Recommended purchase: Breville Juicer (much better than Jack LaLane, its \$149 at Bed Bath & Beyond and Macys when on sale, its easy to clean and has 800 watts vs 200 with the JLL, which is difficult to clean.
- When juicing, aim to eat 50% total diet of vegetables.
- Add to diet 30% fruit/nuts/seeds. Avoid pesticides. Buy organic whenever possible, especially when purchasing strawberries, apples or spinach
- Take prescription fish oil, and, if doctor-recommended, a baby aspirin, Vitamin D and CoQ10 supplement everyday
- Cut back on portions. Make 2/3 of your plate full of colorful green, orange, yellow, red vegetables... only small portion of a protein food (i.e. organic chicken, veal, lamb, ostrich)





Don't

- Eat red meat but once per month
- Eat after 8pm
- Eat cake or bread, except on rare occasions
- Drink milk or dairy
- Work past 9pm. Get a good nights sleep (don't eat late, don't drink coffee or alcohol late)
- Engage in arguments. Be happy with yourself. Being alone is not lonely.





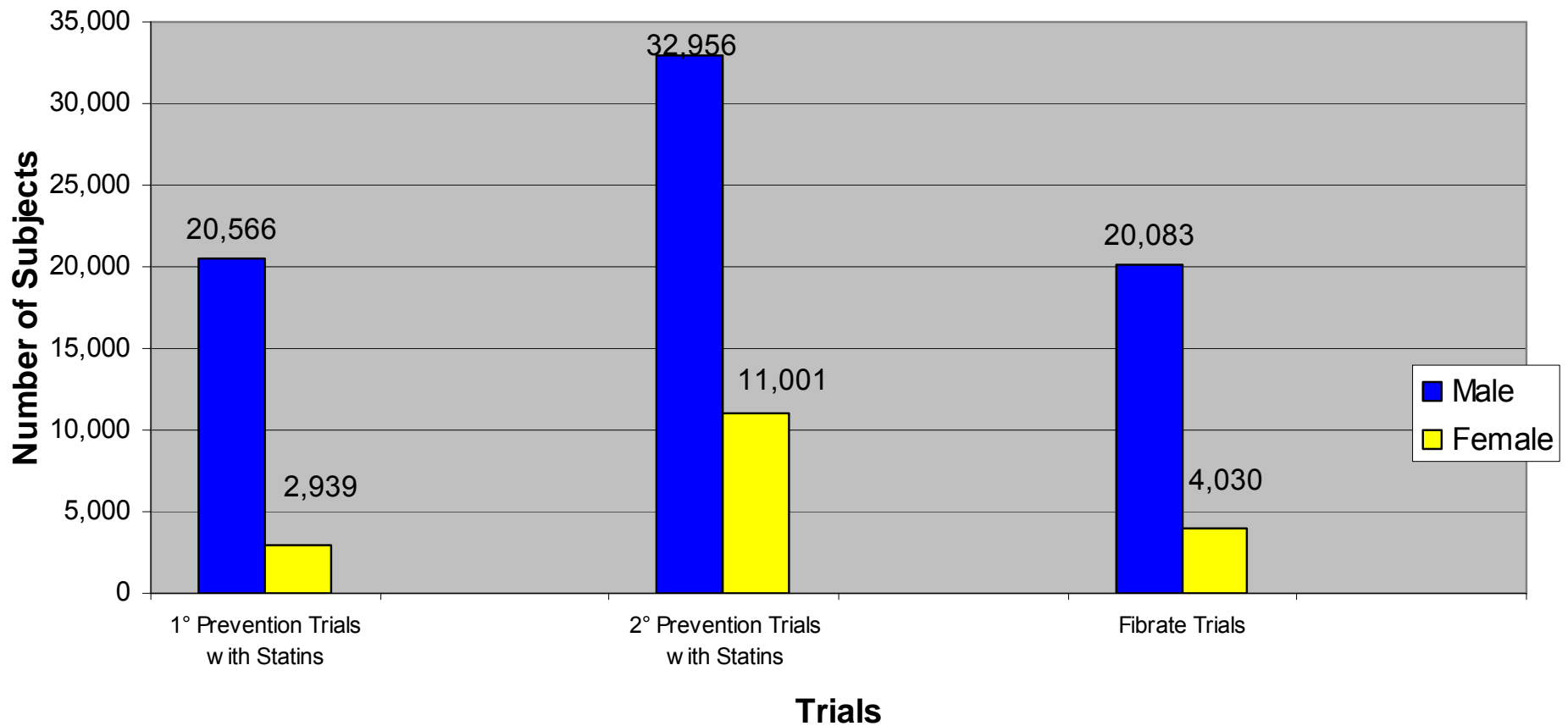
The Healthcare Reform Act

- Part of American Recovery and Reinvestment Act of 2009
- GOAL: To improve individual and population health outcomes
- HIT (Health Information Technology) taking a major role. The Standards Committee is looking to set up a “wikki”
- Smart technology: outcome-based reimbursement system and EMR will enable hospitals and insurers to examine gender-specific outcomes that will provide a window into which treatments work best for women.





Representation of Women in lipid trials





The Challenge: Practicing evidence-based medicine – entering a new era

- Statins shown beneficial in secondary prevention and in women with diabetes. Evidence lacking for use in primary prevention. Insufficient number of women participants to draw conclusions
- Women need to ask “What is the evidence?” before submitting to any treatment.







Take Care of Your Heart

www.womensheart.org

www.runformom.org





Physician testing centers for MCG in New Jersey

- John E Strobeck, MD, PhD, FACC
 - 297 Lafayette Avenue
 - Hawthorne, NJ 07506
 - PH 973-423-9388 Tel
- Girija Surya, MD, FACC
 - 646 Rte 18, Plaza Hill, Bldg A, Suite 103
 - East Brunswick, NJ 08816
 - PH 732-254-0500

