Cardiovascular Health and Disease and Natural Medicine

Metabolic Syndrome, Obesity, Diabetes

Presented by

Dr. Christopher Hobbs, Ph.D., L.Ac., A.H.G.

Cardiovascular Herbs

Lily-of-the-Valley

Cardiovascular System
According to TCM

- Rules the blood and vessels
- Also main organ system involved with the higher functions of the nervous system
- Stores the "shen" or spirit
- The tongue is the "Sprout" of the heart; the tip reflects health of heart for tongue diagnosis
- Reflects in the "brilliance of the face"

- The end of the nose also reflects heart health
- Major syndromes:
  - Heart Yin deficiency
  - Heart fire (false heat associated with Ht Yin def.)
  - Deficient Heart Blood
  - Deficient Heart Qi
  - Mucus "misting" the Heart

TCM Heart Imbalance Patterns

- Heart Yin deficiency (and Heart Blood def.)
  - Both associated with lack of blood flow to the heart
  - Symptoms: heart palpitations, disturbed sleep, anxiousness, forgetfullness
  - Ht blood—pale tongue; Ht Yin—red tongue, no coating
  - Could underlie many kinds of heart and hormonal diseases
  - Main herbs:
    - Heart Yin tonics: American ginseng, zizyphus seed (*Zizyphus spinosa*)
    - Heart Blood tonics: strengthen digestion to build blood

TCM Heart Imbalance Patterns

- Heart Qi deficiency
  - Causative factors: smoking, cardiovascular disease
  - Symptoms: weak, small pulse, lethargy, shortness of breath (associate with congestive heart failure), loss of alertness, ankle swelling
  - Associated western diseases: congestive heart failure, coronary heart disease, depression, neuroses
  - Main herbs: *Selenicereus grandiflorus* (cactus), spreading dogbane (*Apocynum androsaemifolium*), Hawthorn flowers, leaves (*Crataegus* spp.)

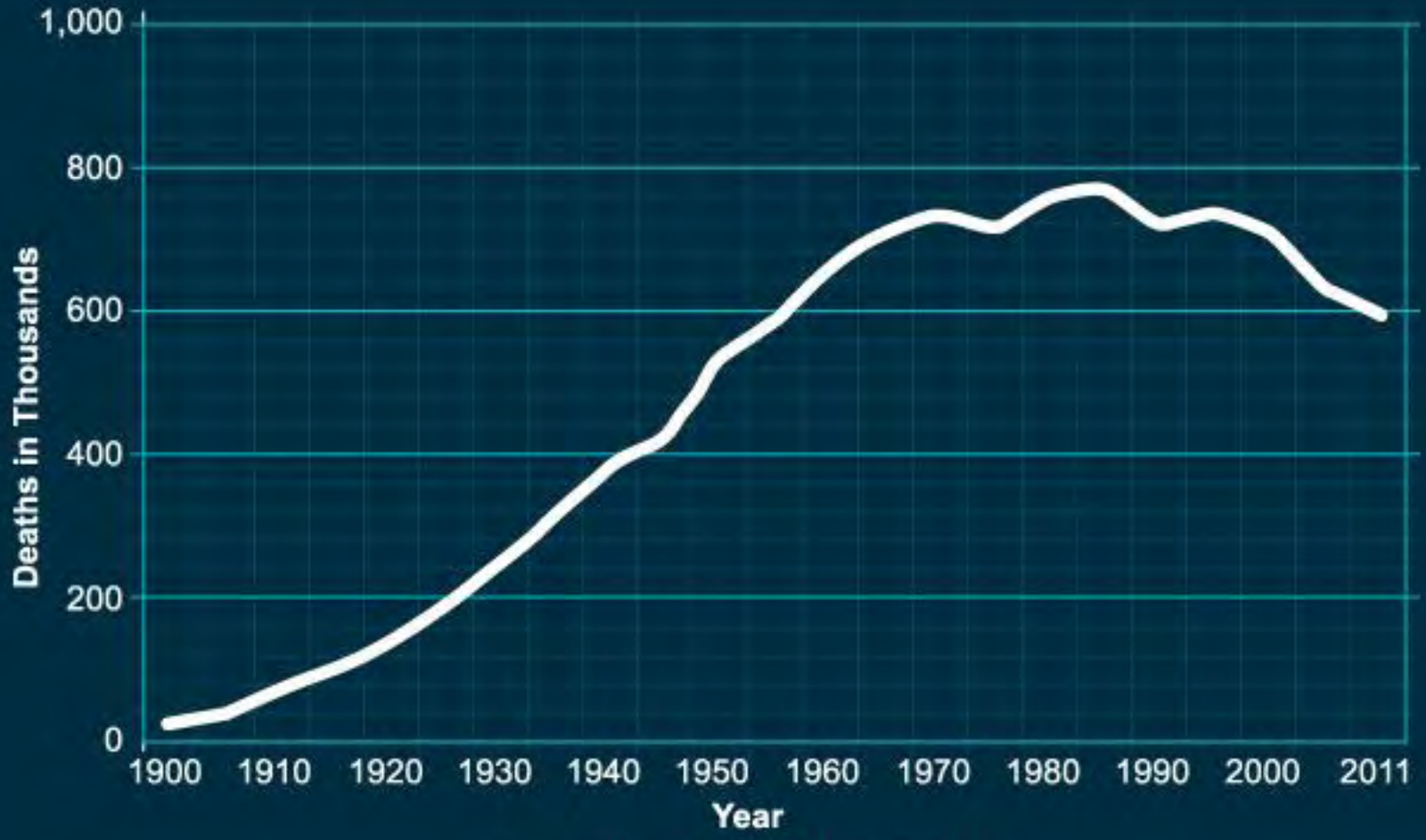
Cardiovascular Health

- Dietary factors
  - Soluble and insoluble fiber (whole grains, beans)
  - Antioxidant vitamins, minerals and other factors from vegetables, fruits, seeds, nuts, whole grains, beans
  - Special foods: garlic, onions
  - Avoid foods with added processed fat and sugar
  - Refined sugar may play more of a role than fat in the development of heart disease
  - Microinflammation: pathogenic heat is promoted with the use of metabolic stimulants such as caffeine, red meat, refined sugar (Supersize Me!)

Cardiovascular Disease Topics

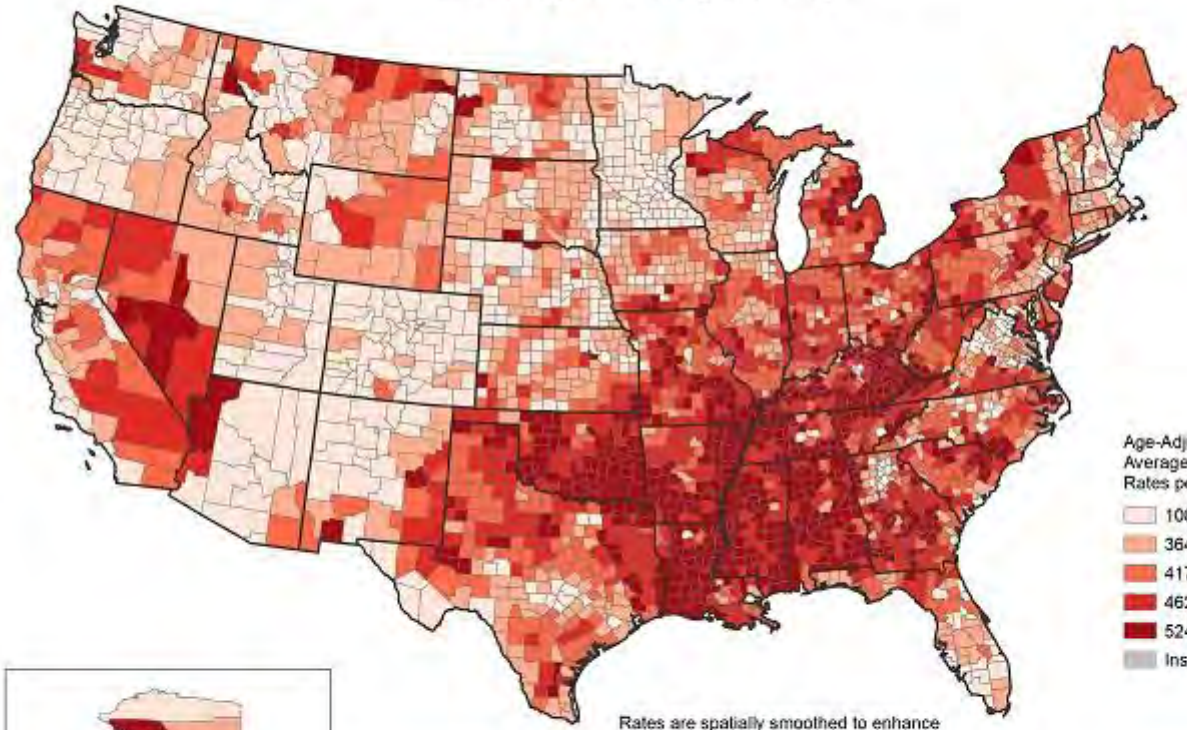
- Arrythmias (PVCs, PACs, tachycardia, bradycardia)
- Hyperlipidemia
- Hypertension
- Congestive heart failure
- Coronary heart disease
  - Intermittent claudication
  - Stroke, heart attack
- Veins, inflammation, varicosities
- Clotting disorders

U.S. deaths due to diseases of the heart (1900-2011)



Source: National Center for Health Statistics

Heart Disease Death Rates, 2011-2013
Men, Ages 35+, by County



Age-Adjusted
Average Annual
Rates per 100,000

- 108.9 - 364.3
- 364.4 - 417.2
- 417.3 - 462.5
- 462.6 - 524.1
- 524.2 - 1262.6
- Insufficient Data

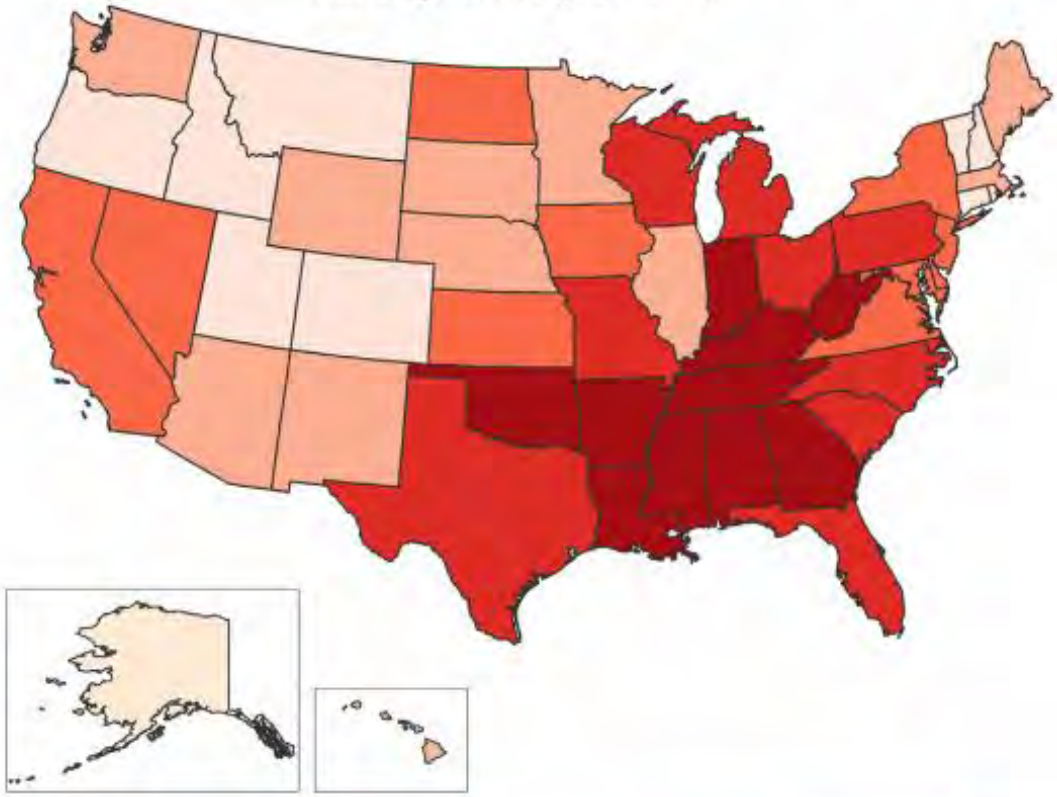
Rates are spatially smoothed to enhance the stability of rates in counties with small populations.

Data Source:
National Vital Statistics System
National Center for Health Statistics

CDC

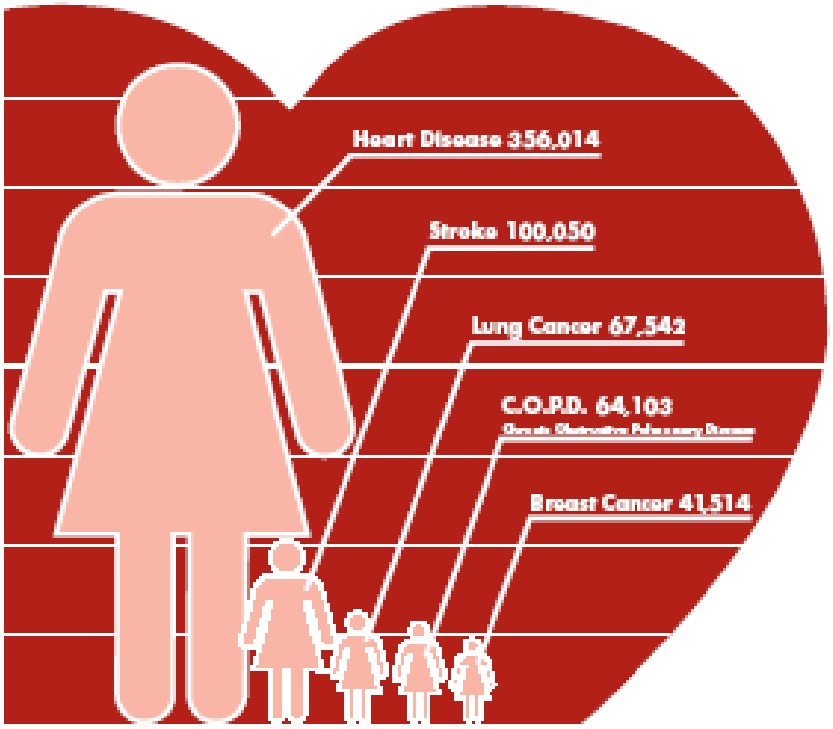
Risk of Developing Heart Disease in the Next 10 Years

Among men ages 30-74



Source: Yang et al., American Journal of Preventive Medicine, 2014

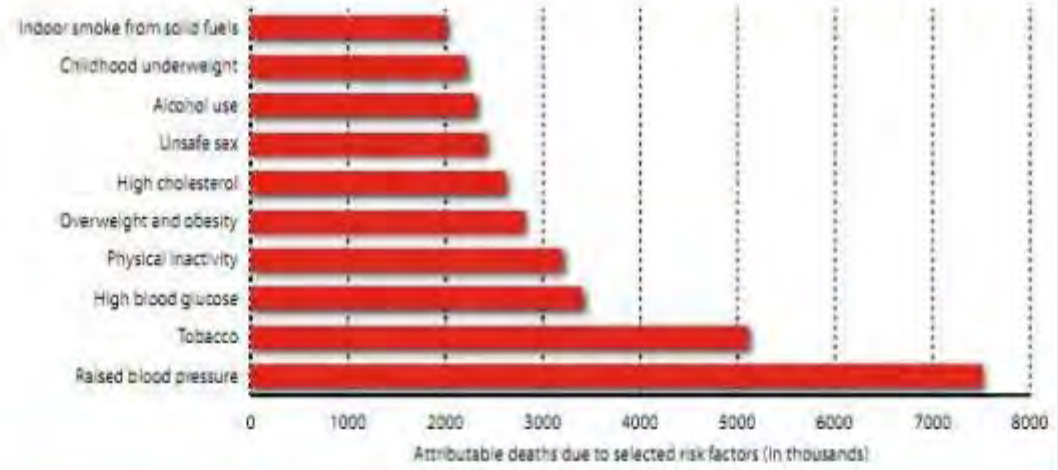
Leading Causes of Death for Women



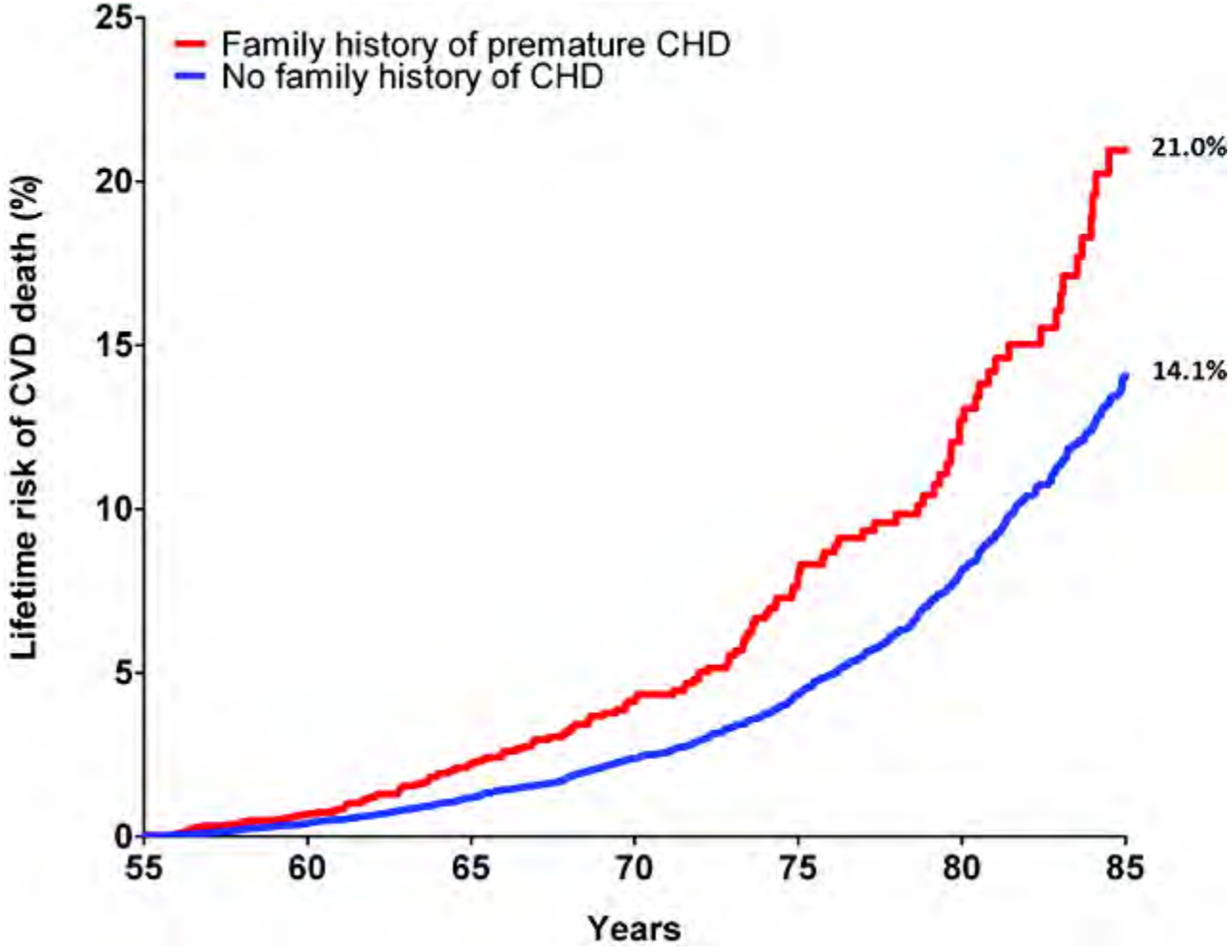
Sources: The Healthy Heart Handbook for Women, National Heart, Lung, and Blood Institute (2005)
Based on 2002 data

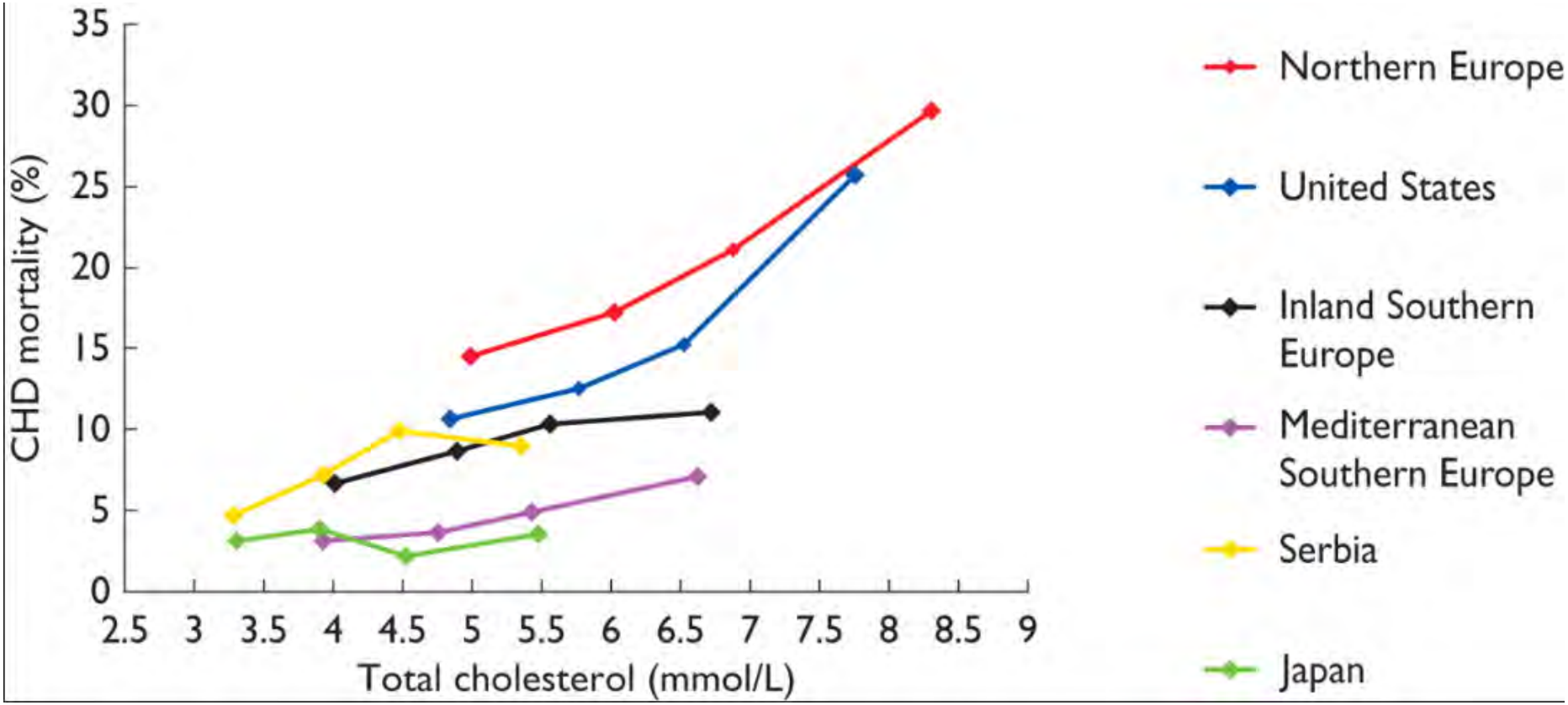
Global Map Risk Factors of Cardiovascular Diseases

Figure 25 Ranking of 10 selected risk factors of cause of death (2).



WHO/WHF/WSO : Global Atlas on Cardiovascular Disease Prevention and Control. Geneva : World Health Organization. 2011


Family history of premature CHD
No family history of CHD
Lifetime risk of CVD death (%)
25
20
15
10
5
0
55
60
65
70
75
80
85
Years
21.0%
14.1%

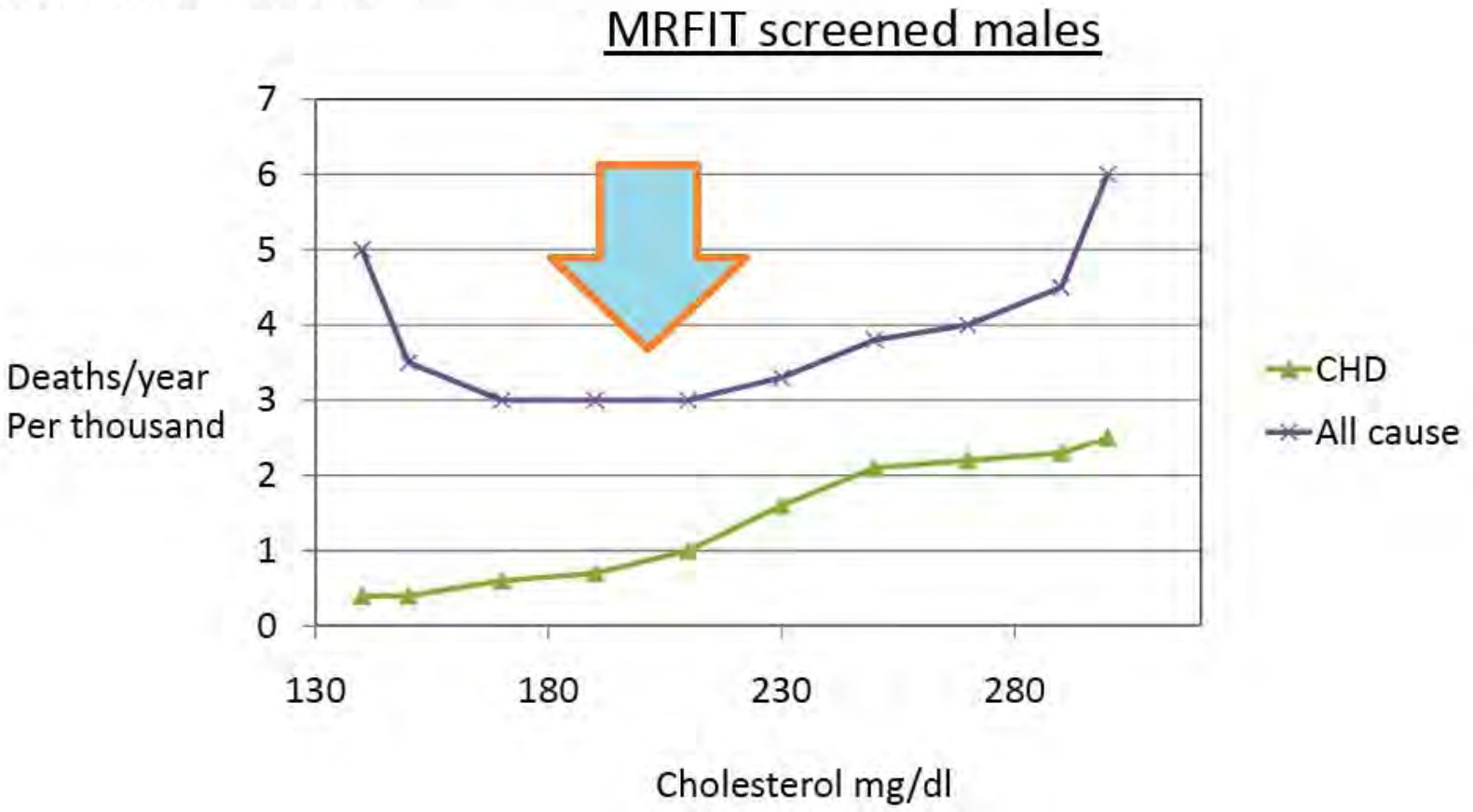

CHD mortality (%)
35
30
25
20
15
10
5
0
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
9
Total cholesterol (mmol/L)
Northern Europe
United States
Inland Southern Europe
Mediterranean Southern Europe
Serbia
Japan

Source:

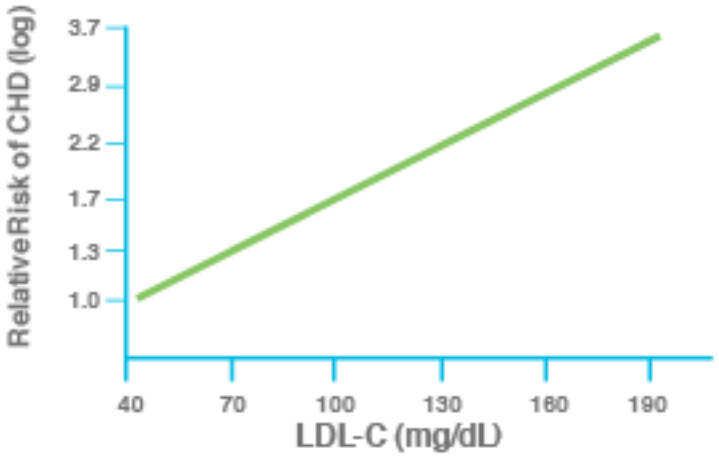
The MRFIT study

- Screened 362,000 middle aged males
(as a selection for the MRFIT intervention study, see later)

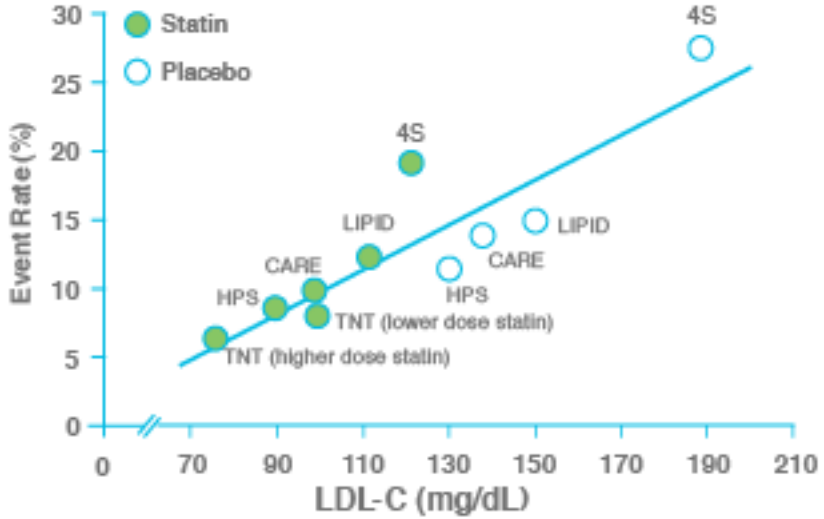
- Followed them for 6 years



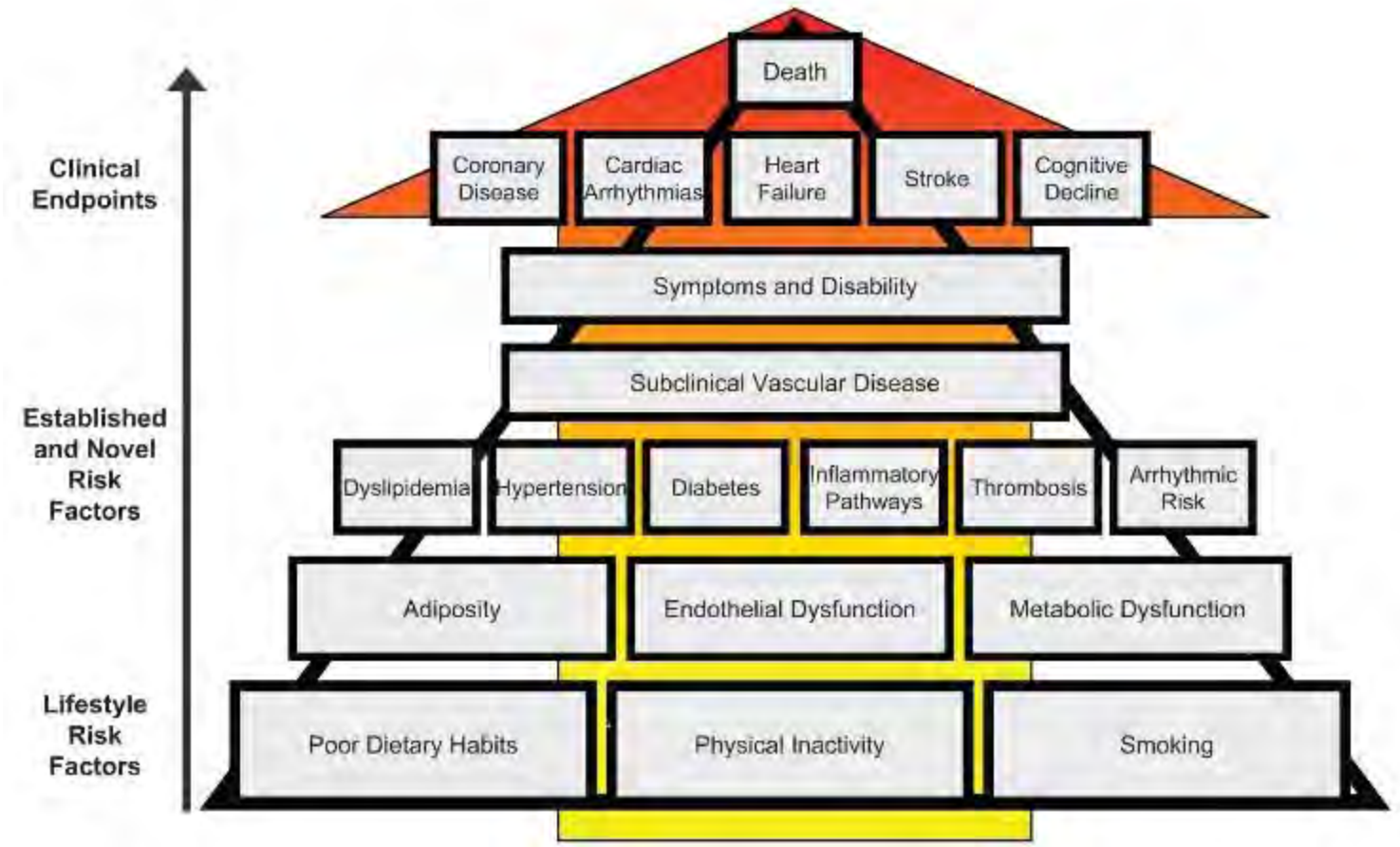
Epidemiological studies have shown a log-linear relationship between LDL-C levels and relative CHD risk[7]



Interventional studies have shown a linear relationship between LDL-C levels and major cardiovascular events[8]



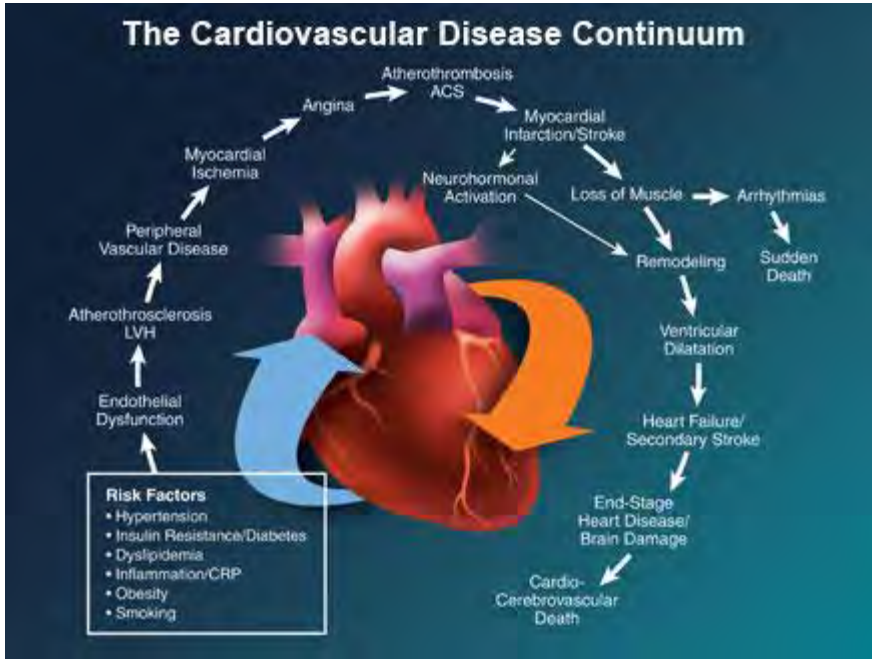
Risk Factors



Circulation. 2008; 117:3031-3038

Cardiovascular Diseases

Diagnoses, symptoms, treatments



- Arrythmias
- Blood lipid abnormalities
- Hypertension
- Congestive heart failure
- Angina
- Abnormal clotting
- Role of inflammation

Arrythmias

- PACs, PVCs (pre-auricular and pre-ventricular contractions)
  - Can cause palpitations that are not dangerous to health, but can be worrisome to people
  - Frequent or rare
  - Cause: sympathomimetics (caffeine), stress, high sympathetic tone, inhaling fine dust particles, refined sugar (metabolic stimulant), heart muscle abnormalities such as previous mild heart attacks
  - Treatment: eliminate high glycemic index foods, reduce stress, eliminate sympathomimetics

Arrythmias II

- Tachycardia: racing heartbeat, over 100 b.p.m.
  - Ventricular tachycardia often not treated; other kinds can be life-threatening
  - Contributing factors: heart attack damaging pacemaker sites in heart muscle, stress, sympathomimetics, metabolic stimulants, thyroid imbalances (consider *Lycopus*)
- Bradycardia: sinus bradycardia (resting rates < 60 are often not pathologic)
  - Cardiovascular fitness, young people, genetic variation (*Convalaria*)

Arrythmias: Treatment

- Calm thyroid activity
  - Bugleweed
  - Motherwort
  - Blue vervain
  - Lemon balm
- Cardiac glycosides
  - Dogbane
- Blood-moving herbs
  - Motherwort, Chinese red sage
- Cardiac regulators--positive chronotropics
  - Hawthorn (flowers, leaves)
  - Scotch broom (tops), for tachycardia

Dogbane
(*Apocynum androsaemifolium*

- Tincture 70/30 ETOH
- Contnains the cardiac glycosides k-strophanthin, cymarin, apobioside
- Anticancer activity (NCBI); my screening of 100 native plants against breast cancer cells
- Sayre: diuretic, edema due to CHF; dose—15 drops of 1:1 fluid extract
- "most certain diuretic" (Felter-Lloyd)
- debility or weakness, atonic state (not for excess conditions)

- Always mix with other herbs in about 10-15%
  - Crataegus
  - Selenicereus
  - Lycopus
- Nauseant
- F-L dose: decoction in small doses (a teaspoonful every 1 or 2 hours)
- Tincture: 10-15 drops in water
- The decoction is most effectual

Crataegus spp.

- Arrythmias treated in German medical practice, i.v. (Layer, 1957)
- Arrythmias effectively treated in 4 separate *in vivo* studies, including the most recent in 2015 (Alp *et al.*, 2015).
- High dose hawthorn extract in >1,000 patients with NYHA II CHF—increase in non-arrhythmic patients during study (Tauchert *et al.*, 1999).

- Flowers and leaves
- Fruits for syrup
- Any species
- Dose: 900 mg/day of concentrated extract
- Could be standardized to flavonoids

Hyperlipidemia: Testing

- Total cholesterol
- HDL/LDL ratio
- Triglycerides
- Other tests: This panel contains the following tests: VLDL, Triglyceride, Lipoprotein(a), Apolipoprotein B, Homocysteine
- High resolution CRP

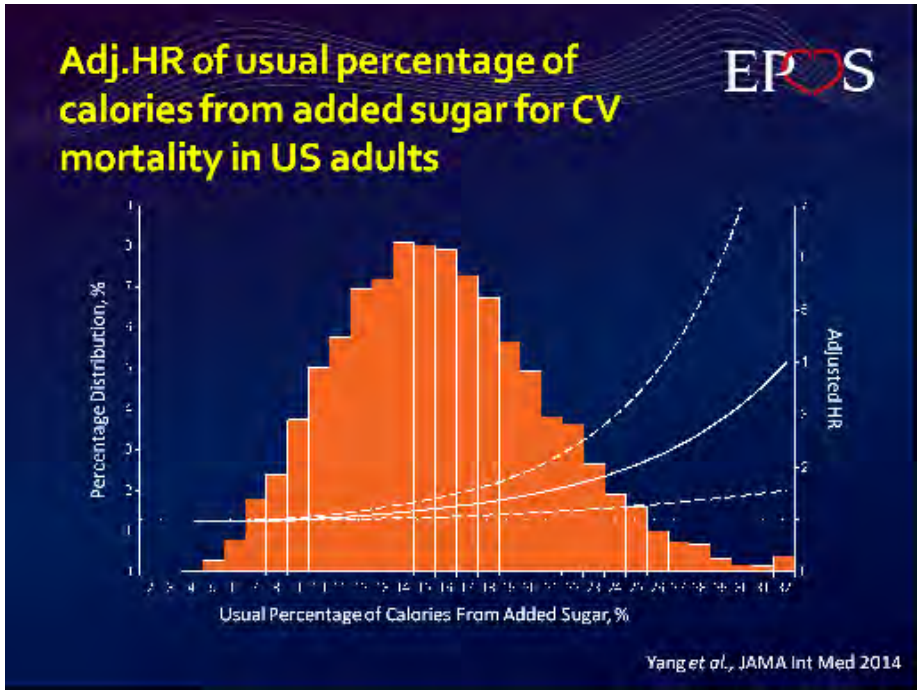
Cholesterol Levels

Lipid	Desirable	Needs Attention	
Total Cholesterol	< 200	> 200 > 240 > 300	Moderately elevated Elevated Severely elevated
LDL-Cholesterol	< 130	> 130 > 160 > 190	Moderately elevated Elevated Severely elevated
HDL-Cholesterol	> 45	< 40	Low
TC: HDL	< 4.5	> 5	High
LDL: HDL	< 3	> 3.5	High

Triglycerides

- Most common kind of fat in food, common risk factor for heart disease in the middle-aged
- Less than 150 is desirable
- Said to be related to insulin levels and intake of high-glycemic index foods
- Lowering HGI foods can lower triglycerides
- Alcohol consumption can increase levels
- Always recommend: no added sugars in the diet

Dietary Sugars and Cardiovascular Risk
Supportive Meta-Analysis



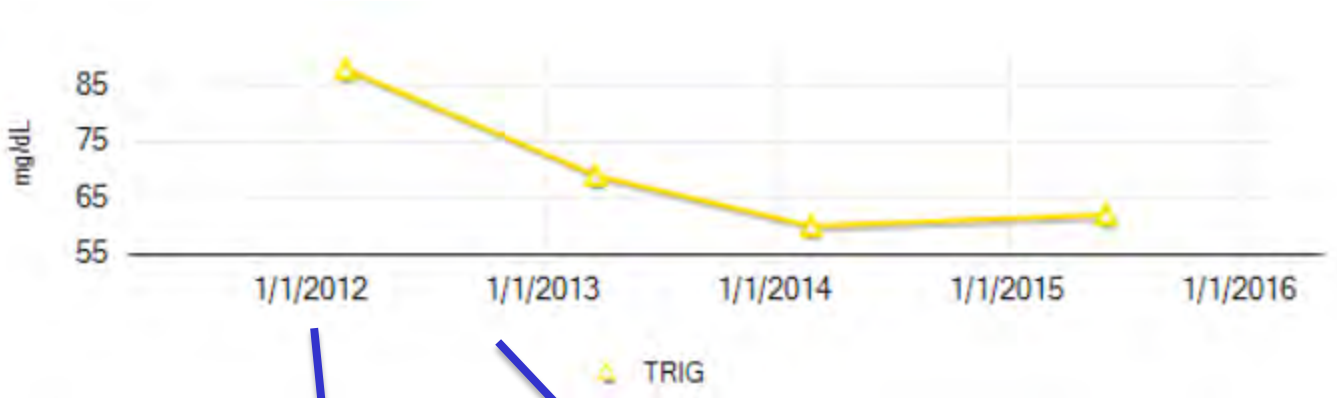
Exponential increase of death from CVD with increase of added sugar (HR = hazard ratio) source: NHANES

- Systematic review of 40 trials, either parallel or cross-over design
- 39 reported lipid outcomes
- Data was pooled and checked for stringent criteria
- Higher compared with lower sugar intakes significantly raised triglyceride concentrations
- Conclusion: Dietary sugars influence blood pressure and serum lipids. The relation is independent of effects of sugars on body weight

Source: Morenga *et al.*, 2014

My own triglyceride story

< 150 desirable



After 7 years of graduate school

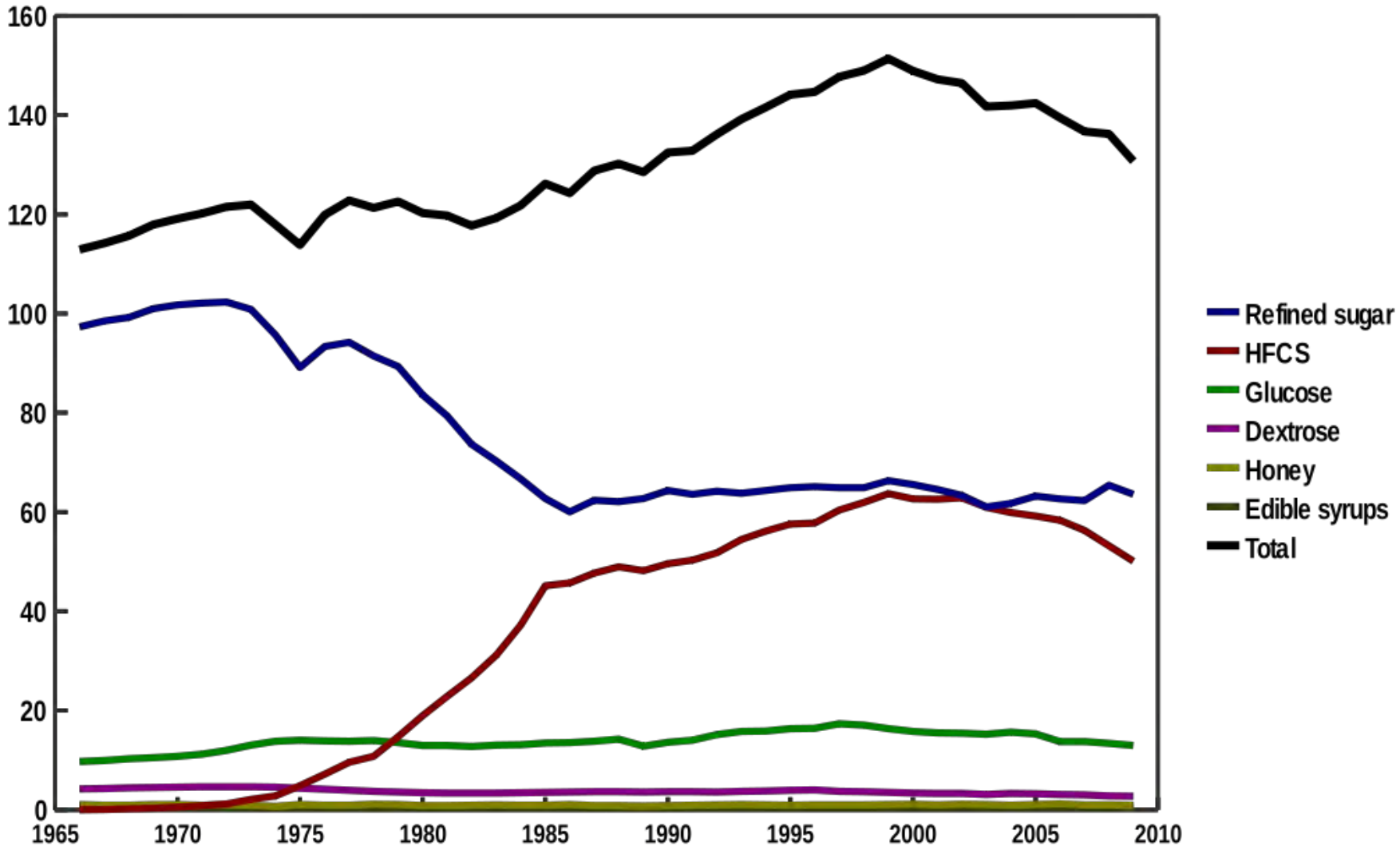
Cut all added sugar

Sugar—How Sweet it is(n't)

- Added sugar!
- Lack of exercise = hyperlipdemia, insulin pathway imbalances, obesity, diabetes, CVD

Coming to our senses?

(consumption of sugar/person/year, in pounds)



Hyperlipidemia
Risk Factors

- Diet rich in saturated fat, trans fat, dietary cholesterol, and excessive calories, and especially added sugar leading to obesity
- Lack of exercise
- Hypothyroidism (low thyroid function)
- Chronic liver disease (mainly primary biliary cirrhosis)
- Cholestasis (stopped or suppressed flow of bile)
- Cushing's syndrome (high corticosteroid levels)
- Oral contraceptive use (birth control pills)
- Anorexia nervosa (an eating disorder)
- Protease inhibitor use (drugs for the treatment of HIV infection)

Hyperlipidemia
Herbal Treatments

- Garlic: 1 clove 2 x day (crush first)
- Red yeast: *Monascus* produces metabolites that inhibit the enzyme HMG-CoA reductase, the rate limiting step in cholesterol biosynthesis in the liver; dose, 1.2 g extract
- Study: At the end of 8 weeks, serum cholesterol levels were reduced by an average of 23%, triglycerides 36.5%, LDL cholesterol 28.5%, HDL-cholesterol levels were increased by 19.6%
- *Pleurotus ostreatus* (oyster mushroom) powder in food (also contains HMG-CoA reductase inhibitors similar to Lovastatin; take about 1 tablespoon of the powder, 2 x daily (also shiitake)
- Artichoke leaf extract (standardized) increases bile flow and reduces cholesterol levels; dose: 640 mg 3 times daily for 12 weeks
- Other herbs: alfalfa powder, soluble fiber products like pectin, flax, psyllium

Hypercholesterolemia—proven remedies

- Red rice yeast—proven clinical effectiveness
- Guggul resin—studies equivocal; 2009 study showed positive results for reducing total and HDL-C, but no effect for TC/HDL, triglycerides, or LDL (Nohr, 2009)
- Garlic—meta-analysis of 29 studies showed modest reductions of TC and TAG, but not LDL or HDL (Reinhart et al, 2009)
- Artichoke leaf—meta-analysis of 3 studies that met criteria showed moderate reductions (highest of 10% in TC over placebo; Wider et al, 2009)

Materia Medica
Hypocholesterolemics

Oyster mushroom

- Garlic, shiitake
- Oyster mushroom, shiitake
- Red yeast

Red Rice Yeast

- Patient volunteers with hyperlipidemia (n=85, 12 weeks) in a RDBPC study. Subjects received either 2.4 grams per day of red yeast rice or placebo. Total cholesterol and LDL cholesterol was significantly reduced in the treatment arm compared to control after 8 and 12 weeks; no reported side effects over placebo (Heber et al, 1999).
- Reported adverse events from all studies:
  - Adverse events include stomachache, heartburn, dizziness and flatulence

- *Monascus purpureus*, grown on rice
- major active constituent, monacolin K, is the same as lovastatin
- clinical trials have demonstrated effectiveness of red yeast rice preparations in reducing cholesterol levels in hyperlipidemic patients

Materia Medica
Blood-Movers

Cayenne pepper

- In TCM, pain is always associated with *stagnant* blood with increased pooling of wastes, swelling, edema
  - Move the blood with external application of:
    - Essential oils of rosemary, with cayenne, ginger compresses
  - Internally, take blood-moving herbs:
    - Ginger, cayenne, prickly ash bark

Garlic and Hyperlipidemia

- Meta-analysis (Alder *et al.*, 2003)
- Healthy adults with mild-moderate hyperlipidemia
- 18 studies reviewed, 10 chosen
- 700-900 mg/day only
- Study length, 15 weeks average
- N= 698 in all studies
- 6/10 studies showed statistically significant benefits

- Among the studies showing garlic to be significantly effective at lowering lipid levels, the average drop in:
  - total cholesterol 9.9%
  - low density lipoprotein 11.4%
  - triglycerides 9.9%
- However some studies were considered of poor methodological design

Hyperlipidemia
Dietary Treatment

- High fiber, low animal fat and refined sugar diet
- Garlic: 1 clove 2 x day (crush first)
- Artichokes
- Fiber sources
  - Beans!
  - Mucilaginous seeds (flax, psyllium)
  - Many fruits
  - Whole grains
  - **Mueseli (not cooked!)
- Making mueseli at home
  - Oat, barley, rye, other flakes (make your own—Marga Mulino manual grain roller/flaker)
  - Oat, wheat bran or germ (keep refrigerated)
  - Add fruit, chopped nuts; yogurt (optional)
  - Soak with fresh apple juice, almond milk, goat milk, etc. (50-50 with H2O)

The Importance of Soluble Fiber

- High carbohydrate, high fiber diet lowers TC, LDL-C
- Soluble fibres known to lower LDL-C(15) include pectins from apples and citrus fruits, b-glucan from oats and barley, and fibres from flaxseed and psyllium
- Soluble oat fibre is mainly composed of b-glucan
- 4–6 g of this functional ingredient may significantly lower total cholesterol and LDL-C in the range of 8–12%

- Best soluble fiber foods
  - Beans
  - Oats
  - Oat bran
  - Flax
  - Shiitake, oyster mushroom
  - Fruits with pectins (berries, plums, etc.)

Hypertension
Risk Factors

- Heredity
- Race (African Americans are more likely to have high blood pressure than Caucasians are.)
- Male sex (Men have a greater risk of high blood pressure than women until age 55, when their respective risks are similar. At age 75 and older, women are more likely to develop high blood pressure than men
- Age (Blood pressure tends to increase with age, and older people are more likely to have high blood pressure.)
- Atherosclerosis
- Obesity and overweight
- Alcohol consumption, sodium (salt) sensitivity
- Sedentary life style
- Salt to potassium intake

Hypertension Drug Tx

- Diuretics decrease fluid
  - Side effects: K loss, decreased sexual function
- Beta-blockers relax heart, blood vessels
  - Side effects: nausea, bronchial constriction
- Calcium channel blockers relax artery walls
  - SE: headaches, constipation, ankle swelling
- ACE-inhibitors reduces angiotensin
  - SE: cough, increase K levels, skin rashes
- Reserpine is natural compound from *Rauwolfia*
  - Higher doses cause depression

Hypertension
Herbal Treatments

- Shepherd's purse
  - 2-3 ml fresh tincture t.i.d.
- Mistletoe
  - 1 ml tincture of leaves & twigs
- Hawthorn. Leaf and flower tinctures as a base
  - 2-3 m t.i.d.
- Reserpine—0.05 mg
- Garlic—studies and meta-analyses are equivocal, but some show garlic is superior to placebo (Ried et al, 2008)

Hawthorn for hypertension

- Hawthorn for CHF
  - Exerts mild BP-lowering effects
  - Dilates coronary vessels
  - Inhibits ACE
  - Inotropic
  - Mild diuretic activity
  - RDBPC study (n=36), resting diastolic BP only was significantly reduced (AMR, 2010)
  - Mild clinical effect (others)

Rauwolfia

- New Cochrane meta-analysis (Shamon & Perez, 2009)
- Reserpine, a root extract of the naturally occurring plant Rauwolfia serpentina, was used in the past as first-line therapy for reducing blood pressure
- Now it is used mainly as a second line agent
- Reserpine is effective in reducing SBP roughly to the same degree as other first-line antihypertensive drugs (0.5 mg of reserpine)
- Higher doses were initially reported to cause many side effects (Doyle 1954), but doses as low as 0.05 mg daily may be effective when combined with a diuretic (VACS 1982)

Hypertension—Dietary Guidelines

- DASH Diet (Dietary Approaches to Stop Hypertension)
  - low sodium, saturated fat, cholesterol, and total fat
  - abundant in calcium, magnesium, fruits, vegetables
  - fat-free or low-fat dairy products
  - whole grain products, fish, poultry, and nuts
- Salt/potassium—studies empasize importance
  - Salt is added to most restaurant, processed foods (often hidden)
  - Use sea salt, earth salt, or sea vegetable powders to avoid taking in only sodium
  - Increase dark green leafy vegetables to increase potassium intake
  - Kale, collards, mustard greens, broccoli, other Brassica vegetables
  - Less spinach, beet greens, chard (minerals less effectively absorbed)
  - Other foods high in potassium—avocados, dried apricots, banana, figs!, carrot juice, prune juice, melon

Hypertension—Dietary Supplements

- Calcium + magnesium supplementation
  - Good studies on calcium (modest reduction, but useful)
- CoQ-10—meta analysis on 12 trials
  - "potential to lower systolic blood pressure by up to 17 mm Hg and diastolic blood pressure by up to 10 mm Hg without significant side effects" (Rosenfeldt et al, 2007)
- L-Arginine (precursor to NO)
  - modest decrease in blood pressure in both normotensive individuals and hypertensive patients (Chen et al, 2009, review)

Hypertension—Dietary Supplements 2

- Green coffee beans (chlorogenic acid—CGA)
  - CGA is high in fruits and vegetables; in vivo and human studies positive (140 mg/day)
- Fermented milk
  - Calcium, magnesium
  - Anti-hypertensive peptides (valine-proline-proline—VPP, isoleucine-proline-proline, IPP

PUFA (fish oil, omega-3s)

- A meta-analysis of 17 controlled clinical trials of fish oil or omega-3 PUFA supplementation:
  - A diet supplemented with a relatively high dose of omega-3 PUFA, generally >3 g/day, could lead to clinically relevant reduction in blood pressure in individuals with untreated hypertension (Kawasaki et al, 200)
  - low dose of <3 g/day, fish oil or omega-3 PUFA was not effective (Chen et al, 2009)
- Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) have most research
- Other benefits of EPA, DHA
- EPA, DHA supplements made sustainably from sardine, anchovy oils

Congestive Heart Failure
Etiology

- Hypertension
- Coronary artery disease (always present)
- Excessive alcohol consumption
- Smoking
- Myocardial infarction (heart attack)
- Obesity

Congestive Heart Failure
Symptoms

- Fatigue
- Shortness of breath
- Ankle swelling
- Need oxygen
- “tripoding”
- Propped in bed

Congestive Heart Failure, Tx

- Lifestyle recommendations
  - Strictly limit salt; increase K
  - Reduce weight to ideal range
  - Slowly increase exercise to highly aerobic
  - Healthy diet

Congestive Heart Failure
Common Drug Tx

- A.C.E. or angiotensin- converting enzyme inhibitors
  - reduce cardiac loading through vasodilation
- Beta blockers relax blood vessels and reduce heart workload by blocking epinephrine binding to beta receptors of the heart
  - empirical benefits
- Diuretics reduce fluid load
  - Lasix most commonly prescribed
- Digoxin not as much used today (safety)
  - improves symptoms short-term, but no survival benefits

Congestive Heart Failure
Herbal Treatments

- Night-blooming cactus
- Scotch broom
- *Crataegus* spp. (Hawthorn)
- Lily-of-the-valley
- Co-enzyme Q10
- Herbal aquaretics
  - Juniper, uva-ursi, dandelion leaf
- Smooth muscle relaxants
  - California poppy, passionflower
- Peripheral vasodilators
  - Yarrow, blue vervain
- Hypotensives
  - Mistletoe, shepherd's purse

Materia Medica
Cardiac stimulants

Lily-of-the-valley

- *Apocynum androsaemifolium* (Dogbane)
- *Convalaria majalis* (Lily-of-the-valley)
- *Selenicereus grandiflorus* (Night-blooming cactus)

CHF—more herbal notes

- Scotch broom (Cytisus scoparius) flowering tops
  - 2.5 g/180 mL water, infusion; 1 tbsp, t.i.d.
- Convalaria—German preparations, bradycardia. Convastabil (Klein) combines Convalaria +
- Crataegus; useful as a cardiac tonic
- "Cactus"—*Selenicereus grandiflorus*
  - Cardiotonic amines, hordenine ("cactine") (Wagner, Grevel, 1982)
  - Eclectic remedy with scant science
- Hawthorn leaves and flowers (next slide)

Hawthorn for CHF

- Several studies show benefit
  - Large multi-center observational study; 450 mg (18.75% OPC) b.i.d. for 24 weeks
  - Significantly improved exercise tolerance and dyspnea, fatigue, BP, resting pulse in 1,011 patients with NYHA-II cardiac insufficiency (AMR, 2010)
  - RPC (n=209, NYHA-III); 1,00 mg extract daily for 16 weeks; statistically-significant improvement in maximum tolerated workload during exercise
  - SPICE trial (RDBPC multicenter study); n=2,681 with NYHA-II or III CHF; (900 mg daily); reduction in a subset in patients with LV ejection fraction of 30% of cardiac mortality and sudden death, 40%

Coronary Heart Disease
Etiology

- Buildup of plaque and hardening of the arteries are associated with chronic "microinflammation" of long-standing.
- Cardiovascular disease is an autoimmune/chronic inflammatory disorder of the blood vessels
- According to TCM: "pathogenic heat in the blood"

- Dietary factors: added processed fats and sugars in food
- Consumption of sympathomimetics
- Chronic stress, high sympathetic tone, increased metabolic rate with pathogenic heat, either false or true heat
- Lack of exercise, obesity
- Genetic predisposition

Chronic Inflammation is a Silent Public Health Crisis

Top Killers

1. Heart Disease
2. Cancer
3. Lung disease
4. Strokes
5. Accidents
6. Alzheimer's disease
7. Diabetes
8. Flu and Pneumonia
9. Kidney Disease
10. Suicide

How to Diagnose Inflammation?

- How to identify pro-inflammatory markers to address the root of the problem early, before chronic disease states or pain take hold
- Common signs of inflammation:
  - Impotence (beginning vascular disease)
  - Memory changes/muddled thinking
  - Ringing in the ears
  - Swelling, pain, fatigue, myalgia
  - Chronically sore gums, gum disease, deep "pockets"
  - Sore joints, arthritis
  - Heart disease, lupus, liver disease, diabetes

Inflammation and Traditional Medicine

- Traditional Chinese Medicine (TCM)
  - Long history of understanding inflammation as root cause to disease
  - False & true heat
- Diet, Herbs, Acupuncture
- "Drain the heat"
- "Tonify"

- **"True Heat"**
- Thick yellow coat
- Full, fast pulse
- Typically worse when young

- **"False Heat"**
- "Peeled," red tongue body
- Little or no coat
- Chronic condition
- Worse when older

Most-Researched Herbs for Inflammation

- Turmeric (curcumin)
- Pineapple (bromelain)
- Papaya (papain)
- Frankincense (Boswellia)
- Hops (hops bitter acids)
- Buckeye (escin)
- Onions, apples, berries (quercetin)
- Anthocyanins (berries, etc.)
- Willow bark extract (salicin)

Coronary Heart Disease
Medical Tx

- Medications to control Hypertension, to lower cholesterol
- Blood-thinners to prevent clotting, stroke, and heart disease, such as coumadin; enzymes to dissolve clots
- Bypass surgery, heart transplant, artificial heart Stents, angioplasties
- Exercise and diet is irregularly stressed by physicians
- What passes for “prevention,” daily aspirin

Angioplasty, Bypass Statistics

- What's better? Read a review here:
- http://www.heartprotect.com/mortality-stats.shtml
- In these reviews, angioplasty provides best results!
- 926,000 angioplasties were done in the United States in 1998. Of these 539,000 were percutaneous transluminal coronary angioplasty (PTCA or "Balloon angioplasty")
- 594,000 men and 332,000 women had angioplasties
- 553,000 cardiac revascularizations (also known as coronary artery bypass graft or CABG operations) were done in the United States in 1998
- CABG was performed on 396,000 men and 158,000 women

Cardiovascular Disease
Herbal, Dietary Prevention

- Though not always popular, prevention works best
  - Garlic, onions
  - Keeping blood lipids balanced with a whole foods diet low in added fats and sugars
  - Daily use of antioxidant herbs such as hawthorn, ginkgo
  - Many other dietary supplements as detailed above

Materia Medica
Antianginals

Chinese Salvia

- *Ammi visnaga* (Khella)
- *Salvia miltiorrhiza* (Chinese salvia)

Clot Formation
Reduction of Heart Attack, Stroke

- Natto kinase (fermented soybeans)
- Aspirin or Salicin?
- Reduction of chronic inflammation with Nutriceuticals (curcumin, Boswellia, etc.)

Cardiovascular Disease
Herbal Tx II

- Herbs to balance blood lipids and reduce cholesterol
  - Garlic, oyster mushrooms, artichoke leaf, *Artemisia* spp., dandelion, burdock rt.
  - Fenugreek, alfalfa, ginger, myrrh, guggul
- Herbs to balance clotting
  - Garlic, alfalfa, dong quai, ginkgo, sweet clover
- Herbs to move blood
  - Dong quai, prickly ash, red Chinese sage, tien qi ginseng

Cardiovascular Disease
Herbal Tx III

- Other herbs to consider
  - Herbs to improve heart health: hawthorn, ginkgo
  - Other herbs to balance cholesterol, such as herbs high in soluble fibers: fenugreek, flax, psyllium, guar gum, oyster mushrooms
  - Yin tonic herbs to reduce false heat: American ginseng
  - Clear heat from lower Jiao: Yellow dock, Oregon grape root
  - Liver health herbs (liver processes cholesterol): fringetree bark, boldo

Veins
Inflammation, Varicosites

- Herbs to strengthen the veins
  - Butcher's broom
  - Horse chestnut
  - Witch hazel
  - Lemon, citrus peel

Veins
Herbs to Reduce Inflammation

- Thrombophlebitis: formation of clots in an inflamed vein
  - Walking important
  - Homeopathic arnica
  - Sweet clover
  - Blood-movers, especially dong quai, cayenne

Materia Medica
Cardiac Tonics

Garlic

- *Allium sativum* (Garlic)
- *Capsicum frutescens* (Cayenne)
- *Crataegus* spp. (Hawthorn)
- *Leonurus cardiaca* (Motherwort)

Materia Medica
Venous Tonics

Horse chestnut

- *Aesculus hippocastanum* (Horse chestnut)
- *Collinsonia canadensis* (Stoneroot)
- *Hamamelis virginiana* (Witch hazel)
- *Ruscus aculeatus* (Butcher's broom)

Materia Medica
Cardiac Regulators

Dogbane

- *Apocynum androsaemifolium* (Dogbane)
- *Crataegus* spp. (Hawthorn)

Materia Medica
Cardiac sedatives

Scotch Broom

- *Cytisus scoparius* (Scotch broom)
  - Slows heartbeat for tachycardia
  - Diuretic action for "dropsy" or edema due to mild cardiac insufficiency
- *Veratrum* spp. (Hellabore)
  - Highly toxic
  - Native plant
  - For excess conditions with tachycardia, big pulse

End of Cardiovascular Show