Therapeutic Lifestyle Changes in Coronary Risk Reduction

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- I have no disclosures relevant to this presentation
- I have formerly given many promotional presentations, mainly for Merck and Pfizer, none in the last 12 months

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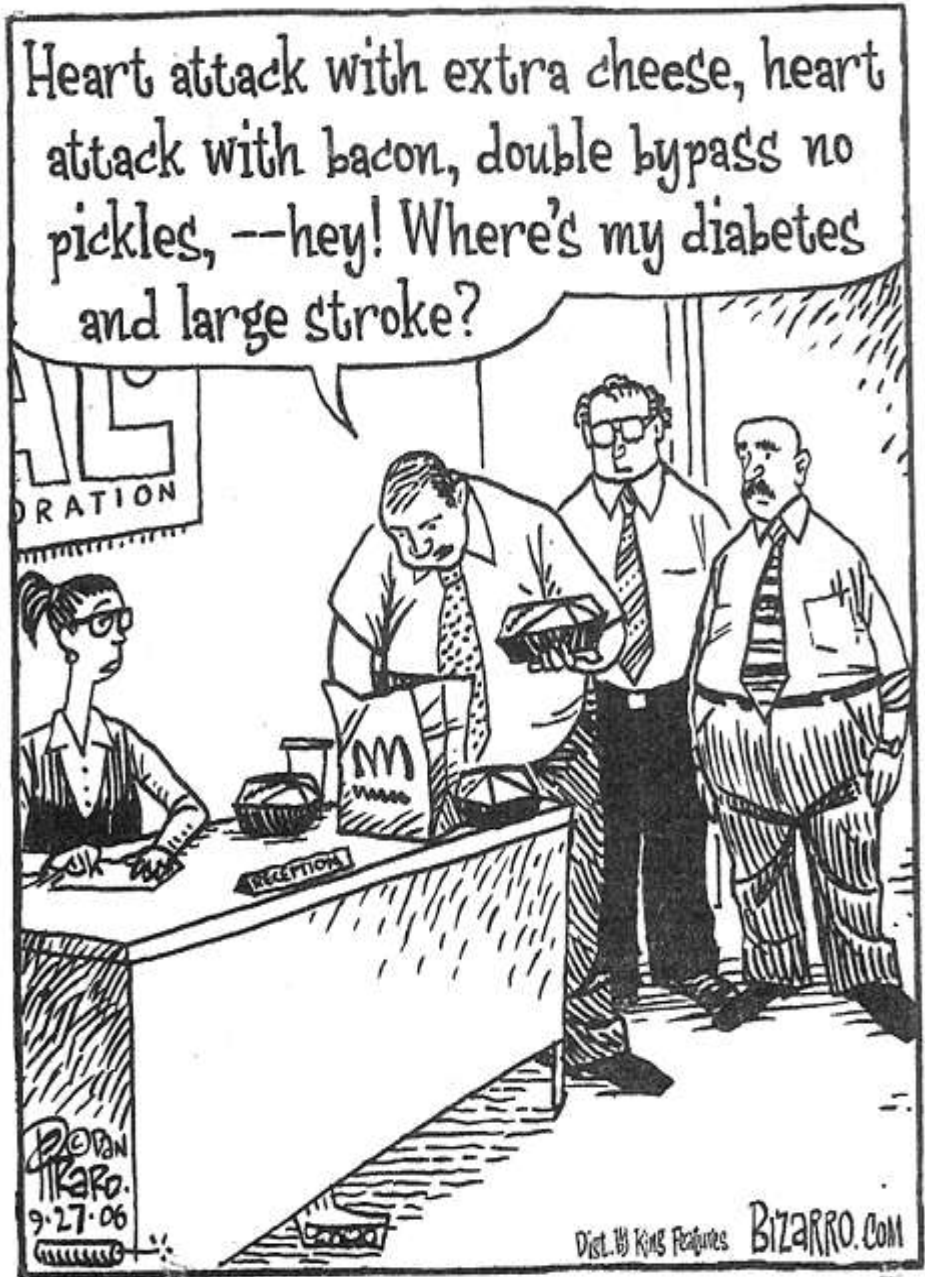
Heart attack with extra cheese, heart attack with bacon, double bypass no pickles, --hey! Where's my diabetes and large stroke?
RATION
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Bottom Line: AHA/ACC Guideline for Secondary Prevention - 2006

	Intervention Recommendations With Class of Recommendation and Level of Evidence
SMOKING: Goal Complete cessation. No exposure to environmental tobacco smoke.	• Ask about tobacco use status at every visit. **I (B)** • Advise every tobacco user to quit. **I (B)** • Assess the tobacco user's willingness to quit. **I (B)** • Assist by counseling and developing a plan for quitting. **I (B)** • Arrange follow-up, referral to special programs, or pharmacotherapy (including nicotine replacement and bupropion). **I (B)** • Urge avoidance of exposure to environmental tobacco smoke at work and home. **I (B)**
BLOOD PRESSURE CONTROL: Goal <140/90 mm Hg or <130/80 mm Hg if patient has diabetes or chronic kidney disease	**For all patients:** • Initiate or maintain lifestyle modification—weight control; increased physical activity; alcohol moderation; sodium reduction; and emphasis on increased consumption of fresh fruits, vegetables, and low-fat dairy products. **I (B)** **For patients with blood pressure ≥140/90 mm Hg (or ≥130/80 mm Hg for individuals with chronic kidney disease or diabetes):** • As tolerated, add blood pressure medication, treating initially with β-blockers and/or ACE inhibitors, with addition of other drugs such as thiazides as needed to achieve goal blood pressure. **I (A)** [For compelling indications for individual drug classes in specific vascular diseases, see Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7).][4]

Smith SC et al. J Am Coll Cardiol. 2006;47:2130-39.

Bottom Line: AHA/ACC Guideline for Secondary Prevention - 2006

LIPID MANAGEMENT:

Goal

LDL-C <100 mg/dL

If triglycerides are ≥200 mg/dL, non-HDL-C should be <130 mg/dL†

For all patients:

- Start dietary therapy. Reduce intake of saturated fats (to <7% of total calories), *trans*-fatty acids, and cholesterol (to <200 mg/d). **I (B)**
- Adding plant stanol/sterols (2 g/d) and viscous fiber (>10 g/d) will further lower LDL-C.
- Promote daily physical activity and weight management. **I (B)**
- Encourage increased consumption of omega-3 fatty acids in the form of fish‡ or in capsule form (1 g/d) for risk reduction. For treatment of elevated triglycerides, higher doses are usually necessary for risk reduction. **IIb (B)**

For lipid management:

Assess fasting lipid profile in all patients, and within 24 hours of hospitalization for those with an acute cardiovascular or coronary event. For hospitalized patients, initiate lipid-lowering medication as recommended below before discharge according to the following schedule:

- LDL-C should be <100 mg/dL **I (A)**, **and**
- Further reduction of LDL-C to <70 mg/dL is reasonable. **IIa (A)**
- If baseline LDL-C is ≥100 mg/dL, initiate LDL-lowering drug therapy.§ **I (A)**
- If on-treatment LDL-C is ≥100 mg/dL, intensify LDL-lowering drug therapy (may require LDL-lowering drug combination‖). **I (A)**
- If baseline LDL-C is 70 to 100 mg/dL, it is reasonable to treat to LDL-C <70 mg/dL. **IIa (B)**
- If triglycerides are 200 to 499 mg/dL, non-HDL-C should be <130 mg/dL. **I (B)**, **and**
- Further reduction of non-HDL-C to <100 mg/dL is reasonable. **IIa (B)**
- Therapeutic options to reduce non-HDL-C are:
  - ⇒ More intense LDL-C–lowering therapy **I (B)**, or
  - ⇒ Niacin¶ (after LDL-C–lowering therapy) **IIa (B)**, or
  - ⇒ Fibrate therapy# (after LDL-C–lowering therapy) **IIa (B)**
- If triglycerides are ≥500 mg/dL#, therapeutic options to prevent pancreatitis are fibrate¶ or niacin¶ before LDL-lowering therapy; and treat LDL-C to goal after triglyceride-lowering therapy. Achieve non-HDL-C <130 mg/dL if possible. **I (C)**

Smith SC et al. J Am Coll Cardiol. 2006;47:2130-39.

Bottom Line: AHA/ACC Guideline for Secondary Prevention - 2006

PHYSICAL ACTIVITY: Goal 30 minutes, 7 days per week (minimum 5 days per week)	• For all patients, assess risk with a physical activity history and/or an exercise test, to guide prescription. **I (B)** • For all patients, encourage 30 to 60 minutes of moderate-intensity aerobic activity, such as brisk walking, on most, preferably all, days of the week, supplemented by an increase in daily lifestyle activities (eg, walking breaks at work, gardening, household work). **I (B)** • Encourage resistance training 2 days per week. **IIb (C)** • Advise medically supervised programs for high-risk patients (eg, recent acute coronary syndrome or revascularization, heart failure). **I (B)**
WEIGHT MANAGEMENT: Goal Body mass index: 18.5 to 24.9 kg/m^2 Waist circumference: men $<$40 inches, women $<$35 inches	• Assess body mass index and/or waist circumference on each visit and consistently encourage weight maintenance/reduction through an appropriate balance of physical activity, caloric intake, and formal behavioral programs when indicated to maintain/achieve a body mass index between 18.5 and 24.9 kg/m^2. **I (B)** • If waist circumference (measured horizontally at the iliac crest) is $\geq$35 inches in women and $\geq$40 inches in men, initiate lifestyle changes and consider treatment strategies for metabolic syndrome as indicated. **I (B)** • The initial goal of weight loss therapy should be to reduce body weight by approximately 10% from baseline. With success, further weight loss can be attempted if indicated through further assessment. **I (B)**

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Bottom Line: AHA/ACC Guideline for Secondary Prevention - 2006

	Intervention Recommendations With Class of Recommendation and Level of Evidence
DIABETES MANAGEMENT: Goal HbA_{1c} <7%	• Initiate lifestyle and pharmacotherapy to achieve near-normal HbA_{1c}. **I (B)** • Begin vigorous modification of other risk factors (eg, physical activity, weight management, blood pressure control, and cholesterol management as recommended above). **I (B)** • Coordinate diabetic care with patient's primary care physician or endocrinologist. **I (C)**
ANTIPLATELET AGENTS/ ANTICOAGULANTS:	• Start aspirin 75 to 162 mg/d and continue indefinitely in all patients unless contraindicated. **I (A)** ⇒ For patients undergoing coronary artery bypass grafting, aspirin should be started within 48 hours after surgery to reduce saphenous vein graft closure. Dosing regimens ranging from 100 to 325 mg/d appear to be efficacious. Doses higher than 162 mg/d can be continued for up to 1 year. **I (B)** • Start and continue clopidogrel 75 mg/d in combination with aspirin for up to 12 months in patients after acute coronary syndrome or percutaneous coronary intervention with stent placement (≥1 month for bare metal stent, ≥3 months for sirolimus-eluting stent, and ≥6 months for paclitaxel-eluting stent). **I (B)** ⇒ Patients who have undergone percutaneous coronary intervention with stent placement should initially receive higher-dose aspirin at 325 mg/d for 1 month for bare metal stent, 3 months for sirolimus-eluting stent, and 6 months for paclitaxel-eluting stent. **I (B)** • Manage warfarin to international normalized ratio=2.0 to 3.0 for paroxysmal or chronic atrial fibrillation or flutter, and in post–myocardial infarction patients when clinically indicated (eg, atrial fibrillation, left ventricular thrombus). **I (A)** • Use of warfarin in conjunction with aspirin and/or clopidogrel is associated with increased risk of bleeding and should be monitored closely. **I (B)**

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Bottom Line: AHA/ACC Guideline for Secondary Prevention - 2006

RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM BLOCKERS:	**ACE inhibitors:** • Start and continue indefinitely in all patients with left ventricular ejection fraction ≤40% and in those with hypertension, diabetes, or chronic kidney disease, unless contraindicated. **I (A)** • Consider for all other patients. **I (B)** • Among lower-risk patients with normal left ventricular ejection fraction in whom cardiovascular risk factors are well controlled and revascularization has been performed, use of ACE inhibitors may be considered optional. **IIa (B)** **Angiotensin receptor blockers:** • Use in patients who are intolerant of ACE inhibitors and have heart failure or have had a myocardial infarction with left ventricular ejection fraction ≤40%. **I (A)** • Consider in other patients who are ACE inhibitor intolerant. **I (B)** • Consider use in combination with ACE inhibitors in systolic-dysfunction heart failure. **IIb (B)** **Aldosterone blockade:** • Use in post–myocardial infarction patients, without significant renal dysfunction** or hyperkalemia††, who are already receiving therapeutic doses of an ACE inhibitor and β-blocker, have a left ventricular ejection fraction ≤40%, and have either diabetes or heart failure. **I (A)**
β-BLOCKERS:	• Start and continue indefinitely in all patients who have had myocardial infarction, acute coronary syndrome, or left ventricular dysfunction with or without heart failure symptoms, unless contraindicated. **I (A)** Consider chronic therapy for all other patients with coronary or other vascular disease or diabetes unless contraindicated. **IIa (C)**
INFLUENZA VACCINATION:	Patients with cardiovascular disease should have an influenza vaccination. **I (B)**

Smith SC et al. J Am Coll Cardiol. 2006;47:2130-39.

Therapeutic Lifestyle Changes in Coronary Risk Reduction

- Therapeutic – good for you – improved outcomes
- Lifestyle – sum of habits (habits – ingrained repeated activity/choice)
- Change – deviation, not the same – force to overcome inertia or momentum
- Coronary Risk Reduction – type of outcome improvement desired

Dimensions in Therapeutic Lifestyle Change

PATIENT

- Primary prevention
- Secondary prevention
- Personal/Cultural considerations

THERAPY

- Diet (weight)
- Activity (weight)
- Habits
  - Tobacco
  - Alcohol
- Metaphysical
  - Psychological
  - Spiritual
- Therapeutic milieu

Considerations in Patients

- Primary prevention – lower event rates, more difficult to show improved outcomes, possibly more difficult to show cost-effectiveness
- Secondary prevention – higher event rates, easier to show improved outcomes, but some damage has already been done
- Socioeconomic/Cultural – ability to afford certain types of choices (costs of medication, costs of healthy foods, costs of engaging in activities); trust in medical system/advice; values and preferences

Therapeutic Benefits of TLC

- Hypertension (sodium, weight, exercise)
- Diabetes (weight, exercise)
- Atherosclerosis/CAD/PVD (smoking, weight, exercise)
- Hyperlipidemia (weight, exercise, smoking)
- Osteoarthritis (obesity)
- Osteoporosis (activity)
- Cancer (smoking, other)

Dimensions in Diet – Calories IN

- Calories – portion sizes
- Macronutrients
  - Carbohydrate
  - Protein
  - Fat
- Hunger – eating habits
- Special Foods
  - Nuts
  - Fish
  - Grapes

"Your diet will work. It just takes some time. If you want to get over being a big patient you'll have to be a little patient."

Basic Nutrition Principles

- Caloric needs can be calculated at various websites and from formulae
- Recommended dietary allowance (RDA) was the standard from 1941 to 1989; but it has been replaced by Dietary Reference Intakes (DRI) in 1997 by the Food and Nutrition Board of the National Academy of Sciences
  - DRI has 4 subtypes (Designed not so much for consumers as nutrition scientists): Estimated Average Requirement, Recommended Dietary Allowance, Adequate Intake, and Tolerable Upper Intake Level

Downloaded December 26 and 29, 2006 from
http://www.health.gov/dietaryguidelines/dga2005/document/pdf/DGA2005.pdf
http://www.mypyramid.gov/downloads/MyPyramid_education_framework.pdf

Anatomy of MyPyramid

One size doesn't fit all

USDA's new MyPyramid symbolizes a personalized approach to healthy eating and physical activity. The symbol has been designed to be simple. It has been developed to remind consumers to make healthy food choices and to be active every day. The different parts of the symbol are described below.

Activity

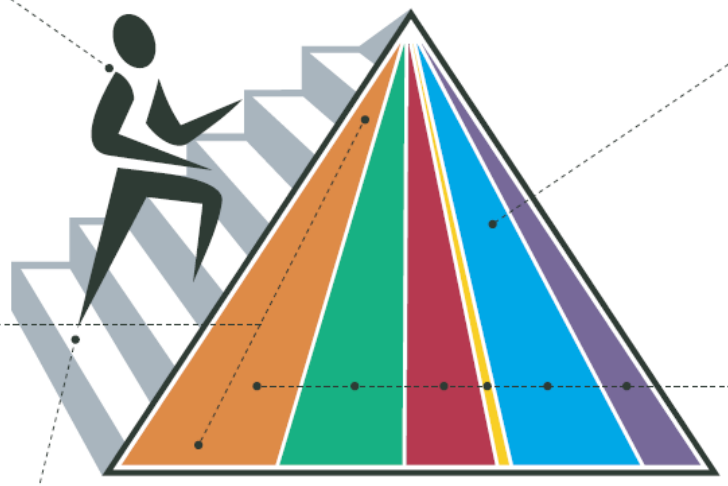
Activity is represented by the steps and the person climbing them, as a reminder of the importance of daily physical activity.

Moderation

Moderation is represented by the narrowing of each food group from bottom to top. The wider base stands for foods with little or no solid fats or added sugars. These should be selected more often. The narrower top area stands for foods containing more added sugars and solid fats. The more active you are, the more of these foods can fit into your diet.

Personalization

Personalization is shown by the person on the steps, the slogan, and the URL. Find the kinds and amounts of food to eat each day at MyPyramid.gov.



MyPyramid.gov

STEPS TO A HEALTHIER YOU

Proportionality

Proportionality is shown by the different widths of the food group bands. The widths suggest how much food a person should choose from each group. The widths are just a general guide, not exact proportions. Check the Web site for how much is right for you.

Variety

Variety is symbolized by the 6 color bands representing the 5 food groups of the Pyramid and oils. This illustrates that foods from all groups are needed each day for good health.

Gradual Improvement

Gradual improvement is encouraged by the slogan. It suggests that individuals can benefit from taking small steps to improve their diet and lifestyle each day.

USDA U.S. Department of Agriculture
Center for Nutrition Policy and Promotion
April 2005 CNPP-16

GRAINS | VEGETABLES | FRUITS | OILS | MILK | MEAT & BEANS

http://www.mypyramid.gov/downloads/MyPyramid_Anatomy.pdf

GRAINS Make half your grains whole	VEGETABLES Vary your veggies	FRUITS Focus on fruits	MILK Get your calcium-rich foods	MEAT & BEANS Go lean with protein
Eat at least 3 oz. of whole-grain cereals, breads, crackers, rice, or pasta every day 1 oz. is about 1 slice of bread, about 1 cup of breakfast cereal, or ½ cup of cooked rice, cereal, or pasta	Eat more dark-green veggies like broccoli, spinach, and other dark leafy greens Eat more orange vegetables like carrots and sweetpotatoes Eat more dry beans and peas like pinto beans, kidney beans, and lentils	Eat a variety of fruit Choose fresh, frozen, canned, or dried fruit Go easy on fruit juices	Go low-fat or fat-free when you choose milk, yogurt, and other milk products If you don't or can't consume milk, choose lactose-free products or other calcium sources such as fortified foods and beverages	Choose low-fat or lean meats and poultry Bake it, broil it, or grill it Vary your protein routine — choose more fish, beans, peas, nuts, and seeds
Eat 6 oz. every day	Eat 2½ cups every day	Eat 2 cups every day	Get 3 cups every day; for kids aged 2 to 8, it's 2	Eat 5½ oz. every day

For a 2,000-calorie diet, you need the amounts below from each food group. To find the amounts that are right for you, go to MyPyramid.gov.

Find your balance between food and physical activity

- Be sure to stay within your daily calorie needs.
- Be physically active for at least 30 minutes most days of the week.
- About 60 minutes a day of physical activity may be needed to prevent weight gain.
- For sustaining weight loss, at least 60 to 90 minutes a day of physical activity may be required.
- Children and teenagers should be physically active for 60 minutes every day, or most days.

Know the limits on fats, sugars, and salt (sodium)

- Make most of your fat sources from fish, nuts, and vegetable oils.
- Limit solid fats like butter, stick margarine, shortening, and lard, as well as foods that contain these.
- Check the Nutrition Facts label to keep saturated fats, *trans* fats, and sodium low.
- Choose food and beverages low in added sugars. Added sugars contribute calories with few, if any, nutrients.

Notice, no more "servings", but portion sizes are in weight or volume.

http://www.mypyramid.gov/downloads/MyPyramid_Anatomy.pdf

Dietary Reference Intakes (DRIs): Estimated Energy Requirements (EER) for Men and Women 30 Years of Age[a]

Food and Nutrition Board, Institute of Medicine, National Academies

Height (m [in])	PAL[b]	Weight for BMI[c] of 18.5 kg/m^2 (kg [lb])	Weight for BMI of 24.99 kg/m^2 (kg [lb])	EER, Men[d] (kcal/day)		EER, Women[d] (kcal/day)	
				BMI of 18.5 kg/m^2	BMI of 24.99 kg/m^2	BMI of 18.5 kg/m^2	BMI of 24.99 kg/m^2
1.50 (59)	Sedentary	41.6 (92)	56.2 (124)	1,848	2,080	1,625	1,762
	Low active			2,009	2,267	1,803	1,956
	Active			2,215	2,506	2,025	2,198
	Very active			2,554	2,898	2,291	2,489
1.65 (65)	Sedentary	50.4 (111)	68.0 (150)	2,068	2,349	1,816	1,982
	Low active			2,254	2,566	2,016	2,202
	Active			2,490	2,842	2,267	2,477
	Very active			2,880	3,296	2,567	2,807
1.80 (71)	Sedentary	59.9 (132)	81.0 (178)	2,301	2,635	2,015	2,211
	Low active			2,513	2,884	2,239	2,459
	Active			2,782	3,200	2,519	2,769
	Very active			3,225	3,720	2,855	3,141

[a] For each year below 30, add 7 kcal/day for women and 10 kcal /day for men. For each year above 30, subtract 7 kcal/day for women and 10 kcal/day for men.

[b] PAL = physical activity level.

[c] BMI = body mass index.

[d] Derived from the following regression equations based on doubly labeled water data:

Adult man: EER = 662 – 9.53 × age (y) + PA × (15.91 × wt [kg] + 539.6 × ht [m])

Adult woman: EER = 354 – 6.91 × age (y) + PA × (9.36 × wt [kg] + 726 × ht [m])

Where PA refers to coefficient for PAL

PAL = total energy expenditure ÷ basal energy expenditure

PA = 1.0 if PAL ≥ 1.0 < 1.4 (sedentary)

PA = 1.12 if PAL ≥ 1.4 < 1.6 (low active)

PA = 1.27 if PAL ≥ 1.6 < 1.9 (active)

PA = 1.45 if PAL ≥ 1.9 < 2.5 (very active)

Example: 58 y ♂ exercises 60 min 3/wk, 71”, 180 lb (BMI 25) –

2884-280=2,604 cal/da (formula 2,657)

	Calorie Range		
Children	Sedentary	→	Active
2–3 years	1,000	→	1,400
Females			
4–8 years	1,200	→	1,800
9–13	1,600	→	2,200
14–18	1,800	→	2,400
19–30	2,000	→	2,400
31–50	1,800	→	2,200
51+	1,600	→	2,200
Males			
4–8 years	1,400	→	2,000
9–13	1,800	→	2,600
14–18	2,200	→	3,200
19–30	2,400	→	3,000
31–50	2,200	→	3,000
51+	2,000	→	2,800

Sedentary means a lifestyle that includes only the light physical activity associated with typical day-to-day life.

Active means a lifestyle that includes physical activity equivalent to walking more than 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life.

http://www.mypyramid.gov/downloads/MyPyramid_Food_Intake_Patterns.pdf

Daily Amount of Food From Each Group

Calorie Level[1]	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
Fruits[2]	1 cup	1 cup	1.5 cups	1.5 cups	1.5 cups	2 cups	2 cups	2 cups	2 cups	2.5 cups	2.5 cups	2.5 cups
Vegetables[3]	1 cup	1.5 cups	1.5 cups	2 cups	2.5 cups	2.5 cups	3 cups	3 cups	3.5 cups	3.5 cups	4 cups	4 cups
Grains[4]	3 oz-eq	4 oz-eq	5 oz-eq	5 oz-eq	6 oz-eq	6 oz-eq	7 oz-eq	8 oz-eq	9 oz-eq	10 oz-eq	10 oz-eq	10 oz-eq
Meat and Beans[5]	2 oz-eq	3 oz-eq	4 oz-eq	5 oz-eq	5 oz-eq	5.5 oz-eq	6 oz-eq	6.5 oz-eq	6.5 oz-eq	7 oz-eq	7 oz-eq	7 oz-eq
Milk[6]	2 cups	2 cups	2 cups	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups
Oils[7]	3 tsp	4 tsp	4 tsp	5 tsp	5 tsp	6 tsp	6 tsp	7 tsp	8 tsp	8 tsp	10 tsp	11 tsp
Discretionary calorie allowance[8]	165	171	171	132	195	267	290	362	410	426	512	648

1 **Calorie Levels** are set across a wide range to accommodate the needs of different individuals. The attached table "Estimated Daily Calorie Needs" can be used to help assign individuals to the food intake pattern at a particular calorie level.

2 **Fruit Group** includes all fresh, frozen, canned, and dried fruits and fruit juices. In general, 1 cup of fruit or 100% fruit juice, or 1/2 cup of dried fruit can be considered as 1 cup from the fruit group.

3 **Vegetable Group** includes all fresh, frozen, canned, and dried vegetables and vegetable juices. In general, 1 cup of raw or cooked vegetables or vegetable juice, or 2 cups of raw leafy greens can be considered as 1 cup from the vegetable group.

http://www.mypyramid.gov/downloads/MyPyramid_Food_Intake_Patterns.pdf

3 **Vegetable Group** includes all fresh, frozen, canned, and dried vegetables and vegetable juices. In general, 1 cup of raw or cooked vegetables or vegetable juice, or 2 cups of raw leafy greens can be considered as 1 cup from the vegetable group.

Vegetable Subgroup Amounts are Per Week

Calorie Level	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
Dark green veg.	1 c/wk	1.5 c/wk	1.5 c/wk	2 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk
Orange veg.	.5 c/wk	1 c/wk	1 c/wk	1.5 c/wk	2 c/wk	2 c/wk	2 c/wk	2 c/wk	2.5 c/wk	2.5 c/wk	2.5 c/wk	2.5 c/wk
Legumes	.5 c/wk	1 c/wk	1 c/wk	2.5 c/wk	3 c/wk	3 c/wk	3 c/wk	3 c/wk	3.5 c/wk	3.5 c/wk	3.5 c/wk	3.5 c/wk
Starchy veg.	1.5 c/wk	2.5 c/wk	2.5 c/wk	2.5 c/wk	3 c/wk	3 c/wk	6 c/wk	6 c/wk	7 c/wk	7 c/wk	9 c/wk	9 c/wk
Other veg.	3.5 c/wk	4.5 c/wk	4.5 c/wk	5.5 c/wk	6.5 c/wk	6.5 c/wk	7 c/wk	7 c/wk	8.5 c/wk	8.5 c/wk	10 c/wk	10 c/wk

4 **Grains Group** includes all foods made from wheat, rice, oats, cornmeal, barley, such as bread, pasta, oatmeal, breakfast cereals, tortillas, and grits. In general, 1 slice of bread, 1 cup of ready-to-eat cereal, or 1/2 cup of cooked rice, pasta, or cooked cereal can be considered as 1 ounce equivalent from the grains group. **At least half of all grains consumed should be whole grains.**

5 **Meat & Beans Group** in general, 1 ounce of lean meat, poultry, or fish, 1 egg, 1 Tbsp. peanut butter, 1/4 cup cooked dry beans, or 1/2 ounce of nuts or seeds can be considered as 1 ounce equivalent from the meat and beans group.

The discretionary calorie allowance can be used to:

- Eat more foods from any food group than the food guide recommends.
- Select forms of foods that contain solid fats or added sugars. Examples are whole milk, cheese, sausage, biscuits, sweetened cereal, and sweetened yogurt.
- Add fats or sweeteners to foods. Examples are sauces, salad dressings, sugar, syrup, and butter.
- Eat or drink items that contain only fats, caloric sweeteners, and/or alcohol, such as candy, soda, wine, and beer.

http://www.mypyramid.gov/downloads/MyPyramid_Food_Intake_Patterns.pdf
http://www.mypyramid.gov/downloads/MyPyramid_education_framework.pdf

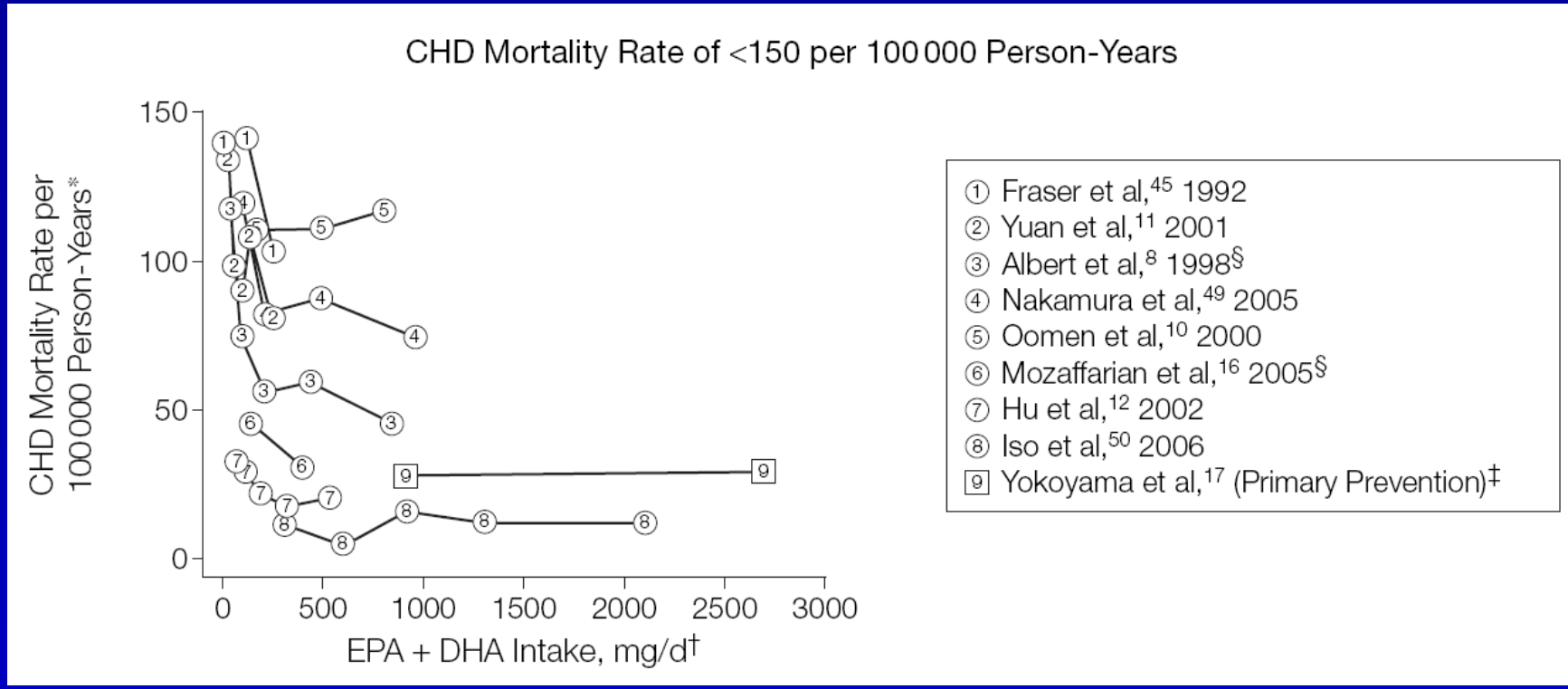
Nutritional Advice

- Encourage patients to educate themselves at websites, particularly www.mypyramid.gov
- Practical hints for weight reduction:
  - Drink plenty of liquids, particularly before mealtime
  - Carefully determine portion sizes (prescription)
  - Eat frequently, at least every 4 hours during the day to avoid strong hunger feeling
  - Stop eating after an appropriate amount of food even if not full, realizing that satiety will come about 45 minutes later
  - Avoid unwise foods if possible, otherwise limit damage by reducing amount of intake of unwise foods

Foods With Special Properties

- Not part of the nutrition guidelines
- Almonds, walnuts may have benefits
- Fish may have benefits (omega-3 fatty acids)
- Olive oil, maybe not
- Grapes, raisins – data less than clear

Fish Intake and Mortality



- **Conclusions** For major health outcomes among adults, based on both the strength of the evidence and the potential magnitudes of effect, the benefits of fish intake exceed the potential risks. For women of childbearing age, benefits of modest fish intake, excepting a few selected species, also outweigh risks.

Mozaffarian D et al. JAMA. 2006;296:1885.

AHA Omega-3 Recommendations

TABLE 5. Summary of Recommendations for Omega-3 Fatty Acid Intake

Population	Recommendation
Patients without documented CHD	Eat a variety of (preferably oily) fish at least twice a week. Include oils and foods rich in α-linolenic acid (flaxseed, canola, and soybean oils; flaxseed and walnuts)
Patients with documented CHD	Consume $\approx$1 g of EPA+DHA per day, preferably from oily fish. EPA+DHA supplements could be considered in consultation with the physician.
Patients needing triglyceride lowering	Two to four grams of EPA+DHA per day provided as capsules under a physician's care

Evidence from prospective secondary prevention studies suggests that EPA/DHA supplementation ranging from 0.5 to 1.8 g/d (either as fatty fish or supplements) significantly reduces subsequent cardiac and all-cause mortality.

Kris-Etherton PM et al. Circulation. 2002;106:2747.

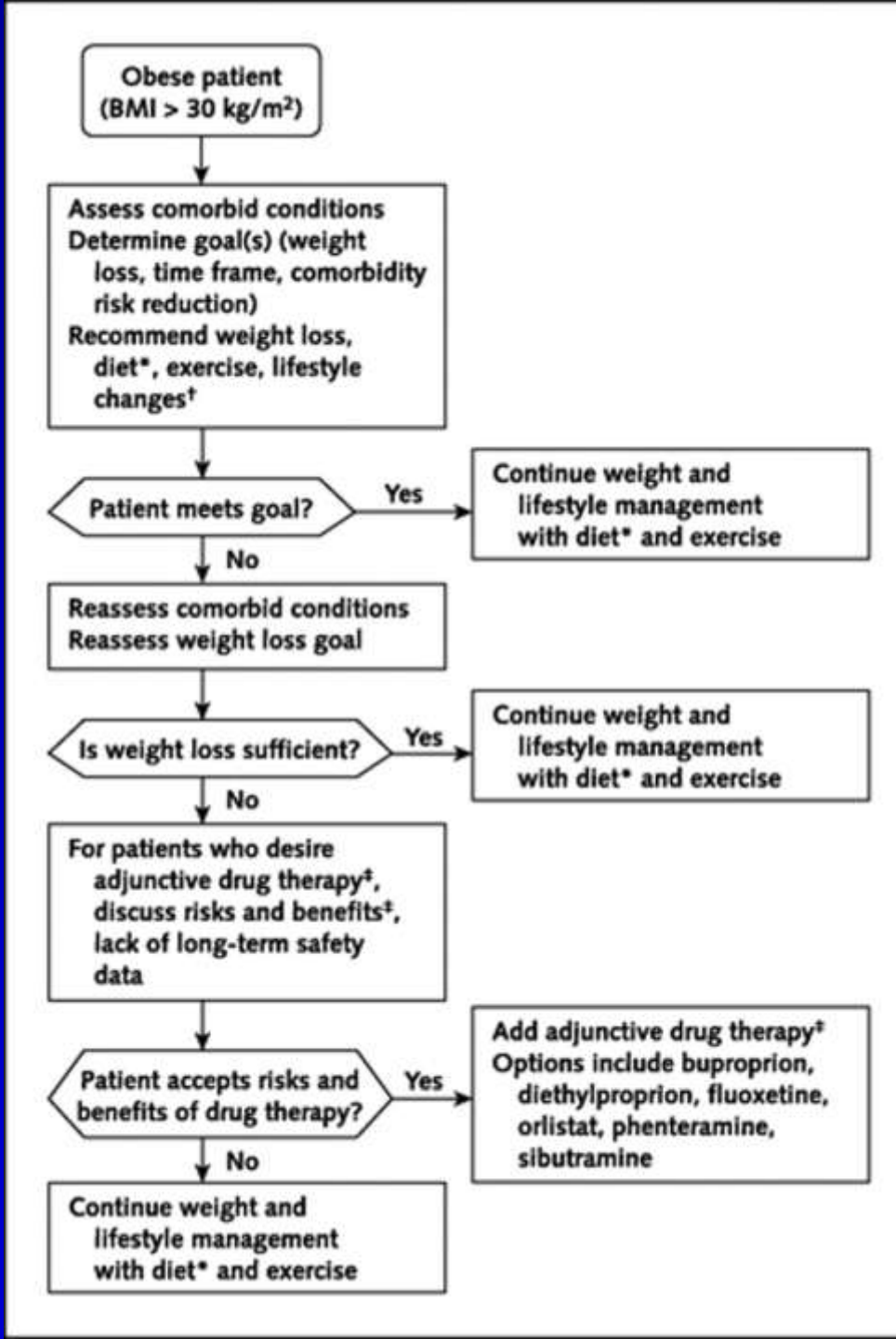
Meats and Beans: Incl. Fish, Nuts, and Seeds

- Many people do not make varied choices from this food group, selecting meat or poultry everyday as their main dishes. Varying choices and including fish, nuts, and seeds in meals can boost intake of monounsaturated fatty acids (MUFAs) and polyunsaturated fatty acids (PUFAs). Most fat in the diet should come from MUFAs and PUFAs. Some of the PUFAs are essential for health—the body cannot create them from other fats.
- Some fish (such as salmon, trout, and herring) are high in a type of PUFA called "omega-3 fatty acids." The omega-3 fatty acids in fish are commonly called "EPA" and "DHA." There is some limited evidence that suggests eating fish rich in EPA and DHA may reduce the risk for mortality from cardiovascular disease. (EPA is eicosapentaenoic acid and DHA is docosahexaeonoic acid.)
- Some nuts and seeds (flax, walnuts) are excellent sources of essential fatty acids, and some (sunflower seeds, almonds, hazelnuts) are good sources of vitamin E.

http://www.mypyramid.gov/pyramid/meat_why.html#fish

Clinical Practice Guideline from American College of Physicians

- Pharmacologic and Surgical therapy for obesity
- Notice that adjunctive drug therapy is at the bottom



Snow V et al. Ann Intern Med. 2005;142:525.

Dimensions in Activity: Calories OUT

- Aerobics
  - Frequency
  - Intensity
  - Timing
- Strength training
- Lung disease
- Musculoskeletal limitations
- Heart failure

"How many calories does channel surfing burn off?"

Quantitating Physical Activity

- ***What is a MET?*** One MET is the rate at which adults burn kcal at rest: This is approximately 1 kcal per kilogram (kg) of body weight per hour (expressed as 1 kcal/kg/hr or 0.45 kcal/lb/hr). MET stands for metabolic equivalent and is defined as "the ratio of the work metabolic rate to the resting metabolic rate" (Ainsworth).
- One MET is resting oxygen consumption, seated, about 3.5 ml O_2 per minute per kg body weight

http://www.wv-hsta.org/cdc_chc/walking_kcal_expenditure.htm

Calories in Physical Activity

- **Total** calories used in walking
  - At 3 mph (moderate pace, level surface): 1.5 kcal/lb/hr
  - At 3.5 mph (brisk pace, level surface): 1.73 kcal/lb/hr
  - At 4 mph (very brisk pace), level surface): 2.27 kcal/lb/hr
  - At 3 mph or 3.5 mph: 0.5 kcal/lb/mi
  - At 4 mph: 0.57 kcal/lb/mi
- **Additional** calories used in walking
  - At 3 mph (moderate pace, level surface): 1.05 kcal/lb/hr
  - At 3.5 mph (brisk pace, level surface):1.28 kcal/lb/hr
  - At 4 mph (very brisk pace), level surface): 1.82 kcal/lb/hr
  - At 3 mph or 3.5 mph: 0.36 kcal/lb/mi
  - At 4 mph: 0.46 kcal/lb/mi

http://www.wv-hsta.org/cdc_chc/walking_kcal_expenditure.htm

Calories in Physical Activity

- **Total** calories used in activity
  - (MET level)*(wt in pounds)*(minutes exercised)*(0.0075)
  - Example: 180 pound person walks 2.5 mph (3 MET) for 30 minutes – 3*180*30*0.0075 = 121 total calories
- **Additional** calories used in activity
  - (Met level -1)*(wt in pounds)*(minutes exercised)*(0.0075)
  - Example: same person – 80 additional calories

http://www.wv-hsta.org/cdc_chc/walking_kcal_expenditure.htm

Activity Recommendations

- Primary prevention: Population recommendations: http://www.cdc.gov/nccdphp/dnpa/physical/growing_stronger/growing_stronger.pdf

"The only body part that gets any exercise is when his nose runs."

Physical Activity

- Physical activity: movement of the body that uses energy. Walking, gardening, briskly pushing a baby stroller, climbing the stairs, playing soccer, or dancing the night away. For health benefits, physical activity should be **moderate** or **vigorous** and add up to at least 30 minutes a day.
- **Moderate** physical activities: 3.5 to 7 kcal/min or the equivalent of 3 to 6 metabolic equivalents (METs) and results in achieving 60 to 73 percent of peak heart rate.
- **Vigorous** physical activities: > 7 kcal/min or the equivalent of 6 or more metabolic equivalents (METs) and results in achieving 74 to 88 percent of peak heart rate.
- Some physical activities are not intense enough to help you meet the recommendations. Although you are moving, these activities do not increase your heart rate, so you should not count these towards the 30 or more minutes a day that you should strive for. These include walking at a casual pace, such as while grocery shopping, and doing light household chores.

http://www.mypyramid.gov/pyramid/physical_activity.html

Benefits of Physical Activity

- Improves self-esteem and feelings of well-being
- Increases fitness level
- Helps build and maintain bones, muscles, and joints
- Builds endurance and muscle strength
- Enhances flexibility and posture
- Helps manage weight
- Lowers risk of heart disease, colon cancer, and type 2 diabetes
- Helps control blood pressure
- Reduces feelings of depression and anxiety

http://www.mypyramid.gov/pyramid/physical_activity_why.html

Types of Physical Activity

- *Aerobic activities* – speeds heart rate and breathing and improves heart and lung fitness. Examples are brisk walking, jogging, and swimming.
- *Resistance, strength building, and weight-bearing activities* – helps build and maintain bones and muscles by working them against gravity. Examples are carrying a child, lifting weights, and walking. They help to build and maintain muscles and bones.
- *Balance and stretching activities* – enhances physical stability and flexibility, which reduces risk of injuries. Examples are gentle stretching, dancing, yoga, martial arts, and t'ai chi.

http://www.mypyramid.gov/pyramid/physical_activity_why.html

Amount of Physical Activity

- Do *moderate* intensity activity for at least 30 minutes most days, or preferably every day. This is in addition to your usual daily activities. Increasing the intensity or the amount of time of activity can have additional health benefits and may be needed to control body weight.
- About 60 minutes a day of moderate physical activity may be needed to prevent weight gain. For those who have lost weight, at least 60 to 90 minutes a day may be needed to maintain the weight loss. At the same time, calorie needs should not be exceeded. Children and teenagers should be physically active for at least 60 minutes every day, or most days.
- While 30 minutes a day of moderate intensity physical activities provide health benefits, being active for longer or doing more vigorous activities can provide even greater health benefits. They also use up more calories per hour. No matter what activity you choose, it can be done all at once, or divided into two or three parts during the day. Even 10-minutes bouts of activity count toward your total.

http://www.mypyramid.gov/pyramid/physical_activity_amount.html

Activity Calories for 154-pound Man

Moderate	60 min	30 min	Vigorous	60 min	30 min
Hiking	370	185	Run/jogging (5 mph)	590	295
Light gardening/yard work	330	165	Bicycling (>10 mph)	590	295
Dancing	330	165	Swimming (slow freestyle laps)	510	255
Golf (walking and carrying clubs)	330	165	Aerobics	480	240
Bicycling (<10 mph)	290	145	Walking (4 ½ mph)	460	230
Walking (3 ½ mph)	280	140	Heavy yard work (chopping wood)	440	220
Weight training (general light workout)	220	110	Weight lifting (vigorous effort)	440	220
Stretching	180	90	Basketball (vigorous)	440	220

http://www.mypyramid.gov/pyramid/calories_used.html#

Physical Activity Intervention Studies

- In subpopulations
  - By age groups
  - Of medically underserved populations
- Intervention-delivery modalities
  - In healthcare settings
  - Worksite interventions
  - Mediated interventions (print, phone, internet)
  - Environmental interventions
  - Multiple behavior change interventions
- Cross-cutting issues
  - Maintenance of changes
  - Theoretical paradigms
  - Diffusion and policy

Marcus BH et al. AHA Scientific Statement. Circulation. 2006;114:2739.

Treatment of Obesity

- Diets
  - long-term weight loss and weight maintenance require a reduction in energy intake
  - reducing total fat, portion size, energy density, and increasing fruit and vegetable intake
- Drugs – controversial role, limited effectiveness
- Bariatric Surgery – common complications and rehospitalization rate of up to 20% in 12 months
- Exercise – physical activity and nonexercise activity thermogenesis
- Facilitating Behavior Change – self-monitoring, modifying environment and thinking patterns, self-efficacy (focus on success), social support
- Putting it all together – give a copy of table 2, p. 98 to patients

Thompson WG et al. "Treatment of Obesity" Mayo Clin Proc 2007;82:93.

TABLE 2. **Behavioral Therapy Techniques for Weight Loss**		
Weight loss technique	Example	Suggestions for implementation
Self-monitoring	Keep track of energy ingested	Consider handheld computer calorie-tracking programs; record food intake as consumed, not at the end of the day or week
	Keep track of exercise activity	Set realistic goals for time and distance walked

Thompson WG et al. “Treatment of Obesity” Mayo Clin Proc 2007;82:93.

TABLE 2. **Behavioral Therapy Techniques for Weight Loss**		
Weight loss technique	Example	Suggestions for implementation
Environmental modification		
Physical environment	Goal: permanent change in eating habits, not short-term diets	Reduce energy intake and consumption of high-fat foods and increase consumption of fruits, vegetables, and fiber; keep fruit on the counter; avoid fruit juices and other sugary beverages; referral to a dietitian is recommended
	Be mindful of weight-loss goals while grocery shopping	Buy fruits and vegetables; avoid problem foods that are tempting
	Reduce consumption of food outside the home	Choose wisely in restaurants (share meals, skip dessert); bring food to work rather than eating at cafeterias and snacking; minimize fast foods

Thompson WG et al. "Treatment of Obesity" Mayo Clin Proc 2007;82:93.

TABLE 2. **Behavioral Therapy Techniques for Weight Loss**		
Weight loss technique	Example	Suggestions for implementation
Environmental modification		
Physical environment (continued)	Increase physical activity	Set aside time for walking every day; walk when talking on the phone at home and at work; park farther away from entrances in parking lots (or walk or bike to your destination); find an exercise partner; use the stairs, not the elevator; understand that increased physical activity is the single most important predictor of maintaining weight loss; if feasible, assistance from trainers and exercise therapists is recommended
Thinking patterns	Create an environment in which self-control can succeed	Avoid temptation if possible rather than trying to resist; use distraction (eg, go for a walk after dinner rather than snacking); reframe temptations (think of less pleasant aspects of the temptation rather than focusing on the desirable aspects)

TABLE 2. **Behavioral Therapy Techniques for Weight Loss**		
Weight loss technique	Example	Suggestions for implementation
Environmental modification		
Thinking patterns (continued)	Plan ahead for high-risk circumstances	Be aware that most people break their eating plan when they come home from work or before bedtime; plan ahead ("If faced with temptation *x,* I will do *y* instead")
	Set clear and attainable short-term goals needed to reach the long-term goal	Set specific, reasonable, and proximate goals ("I will walk 20 min 5 days a week for the next 2 wk") needed for long-term success; when goals are attained, set new goals; if goals are not attained, determine what went wrong - if the strategy was correct but was not executed, try again; if the strategy was the problem, develop another one
	Do not dwell on guilt	Guilt is an ineffective modifier of long-term behavior; it is counterproductive

Thompson WG et al. "Treatment of Obesity" Mayo Clin Proc 2007;82:93.

TABLE 2. **Behavioral Therapy Techniques for Weight Loss**		
Weight loss technique	Example	Suggestions for implementation
Self-efficacy	Focus on success, not failure	Expect setbacks and do not let them destroy your belief in your ability to effect change; focus on learning and implementing new strategies rather than on blame and guilt; referral to a behavioral psychologist is recommended if feasible
Social supports	Family	Explain to your family that their help is needed and appreciated; enlist their help in avoiding temptation and increasing exercise (which often entails a change in other family members' eating and exercise habits)
	Physician	Continue to be optimistic; work with patients to view lack of success as a learning opportunity to refine strategies rather than as a failure; avoid excessive optimism regarding how much weight a patient will lose; facilitate frequent follow-up

Thompson WG et al. “Treatment of Obesity” Mayo Clin Proc 2007;82:93.

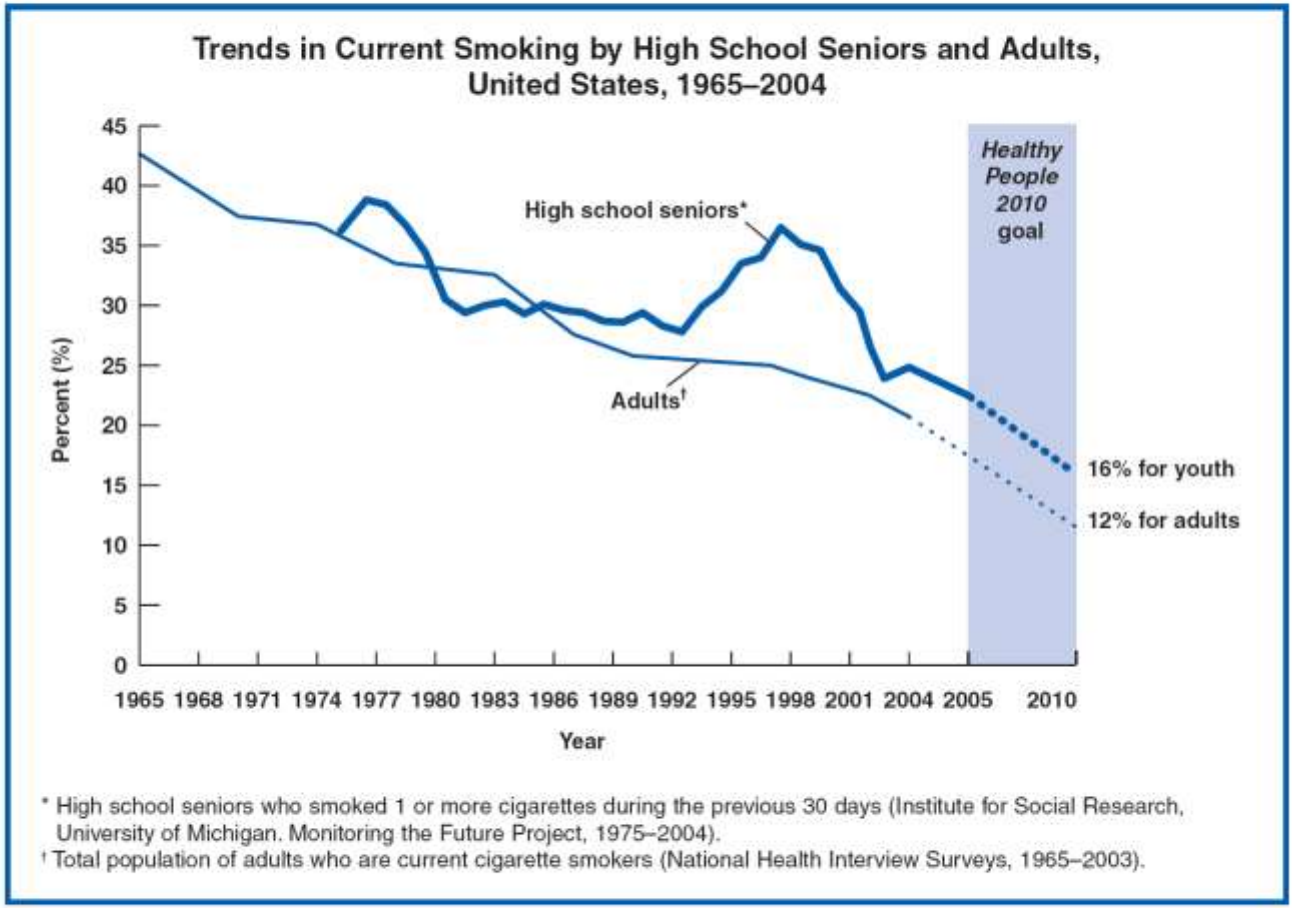
Behaviors Affecting Risk: Bad Habits?

- Tobacco Products – cessation efforts
- Alcohol Products – risks and benefits
- Seat belts, etc.

"I've decided to leave well enough alone."

Tobacco Products

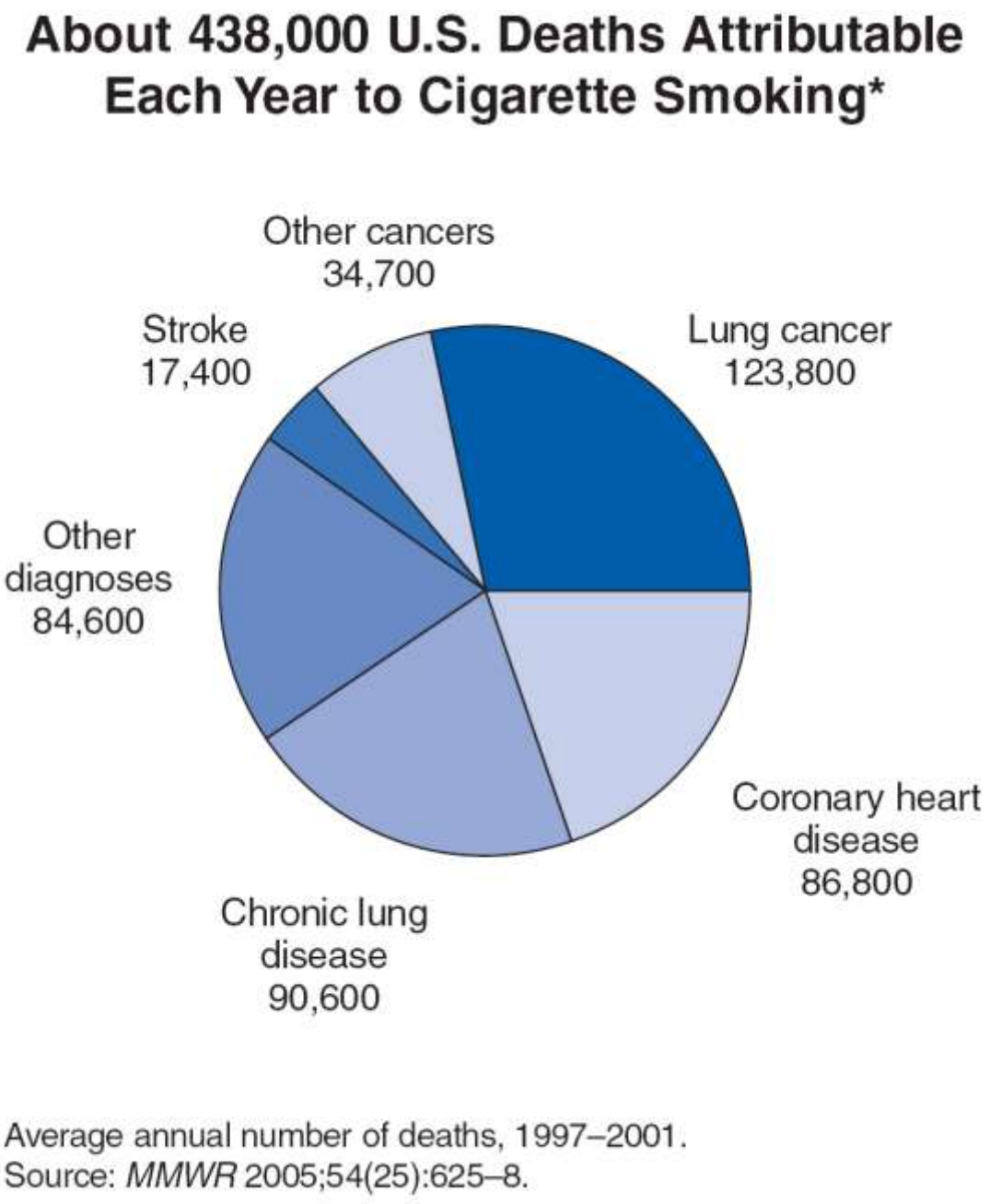
Targeting Tobacco Use
The Nation's Leading Cause of Death
2006



"We've made good progress in reducing the number of people who smoke, but we must further enhance our efforts if we are going to achieve the nation's health objectives for 2010."

http://www.cdc.gov/nccdphp/publications/aag/pdf/aag_osh2006.pdf

Tobacco Products



http://www.cdc.gov/nccdphp/publications/aag/pdf/aag_osh2006.pdf

Clinical Practice Guideline for Treating Tobacco Use and Dependence

- Clinicians should identify tobacco users at each visit and intervene with those individuals who are willing to quit
- Tobacco users willing to make a quit attempt should receive both counseling and pharmacotherapy, except in the presence of special circumstances
- For patients not willing to make a quit attempt now, clinicians should motivate the patient to consider quitting
- Clinicians should act to prevent relapse, especially in the first three months after cessation
- All tobacco users have the potential to successfully quit, and every clinician should commit to delivering treatment that can help

Treating Tobacco Use and Dependence; Clinical Practice Guideline

Guideline – 5 A's

- **Ask** – identify all tobacco users every visit
- **Advise** – strongly urge all to quit
- **Assess** – determine willingness to make a quit attempt (in next 30 da)
- **Assist** – aid the patient in quitting (a plan)
- **Arrange** – follow-up, <1 wk after quit and then <1 mo for second visit

Anderson JE et al. "Treating tobacco use and dependence." Chest. 2002.

Guideline – 5 R's to Enhance Motivation to Quit

- **Relevance** – encourage patient to indicate specifically why quitting is personally relevant
- **Risks** – patient identifies personal negative consequences of smoking
- **Rewards** – patient identifies personal benefits of stopping
- **Roadblocks** – patient identifies barriers to quitting and solutions to those
- **Repetition** – motivational intervention should be repeated each visit of the unmotivated patient

Anderson JE et al. "Treating tobacco use and dependence." Chest. 2002.

Reasons to Quit Smoking

- I will feel healthier right away. I will have more energy and better focus. My senses of smell and taste will be better. I will have whiter teeth and fresher breath. I will cough less and breathe better
- I will be healthier the rest of my life. I will lower my risk for cancer, heart attacks, strokes, early death, cataracts, and skin wrinkling
- I will make my partner, friends, family, kids, grandchildren, and co-workers proud of me
- I will be proud of myself. I will feel more in control of my life. I will be a better role model for others
- I will no longer expose others to my second-hand smoke
- I will have a healthier baby (If pregnant)
- I will have more money to spend
- I won't have to worry: "When will I get to smoke next?" or "What do I do when I'm in a smoke-free place?"

http://www.smokefree.gov/index.asp

Quitting Smoking

S = **Set** a quit date.

T = **Tell** family, friends, and co-workers that you plan to quit.

A = **Anticipate** and plan for the challenges you'll face while quitting.

R = **Remove** cigarettes and other tobacco products from your home, car, and work.

T = **Talk** to your doctor about getting help to quit.

http://www.smokefree.gov/pubs/clearing_the_air.pdf

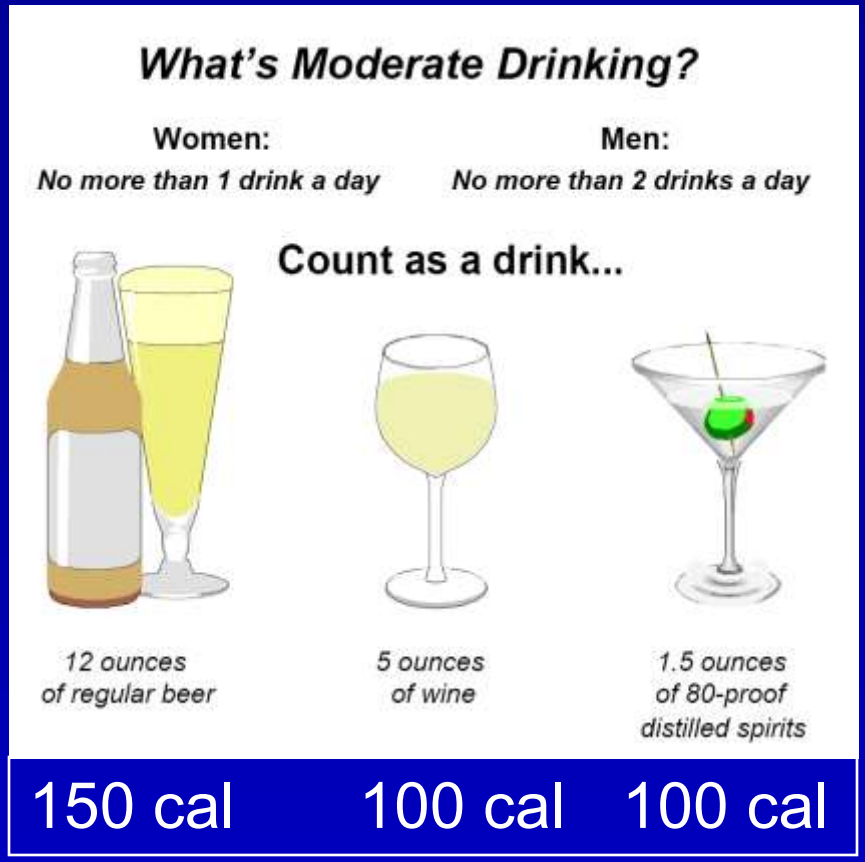
Dealing with Slip-ups

- Understand that you've had a slip. You've had a *small* setback. This doesn't make you a smoker again.
- Don't be too hard on yourself. One slip up doesn't make you a failure. It doesn't mean you can't quit for good.
- Don't be too easy on yourself either. If you slip up, don't say, "Well, I've blown it. I might as well smoke the rest of this pack." It's important to get back on the non-smoking track *right away*. Remember, your goal is no cigarettes — not even one puff.
- Feel good about all the time you went without smoking. Try to learn how to make your coping skills better.
- Find the trigger. Exactly what was it that made you smoke? Be aware of that trigger. Decide *now* how you will cope with it when it comes up again.
- Learn from your experience. What has helped you the most to keep from smoking? Make sure to do that on your next try.
- Are you using a medicine to help you quit? Don't stop using your medicine after only one or two cigarettes. Stay with it. It will help you get back on track.
- Know and use the tips in this booklet. People with even one coping skill are more likely to stay non-smokers than those who don't know any. **START** to stop again!
- See your doctor or another health professional. He or she can help motivate you to quit smoking.

http://www.smokefree.gov/pubs/clearing_the_air.pdf

Alcohol

- A little may be a good thing
- Risk of alcoholism is about 10% (4.65% of the US population has alcohol abuse, 28% drink too much)
- Too much is bad
- Any is bad for patients with
  - Significant hypertension
  - Atrial or ventricular tachyarrhythmia
  - LV systolic dysfunction
- Alcohol is listed as a discretionary calorie source in mypyramid.gov



"Many people overspend their discretionary calorie allowance, choosing more added fats, sugars, and alcohol than their budget allows."

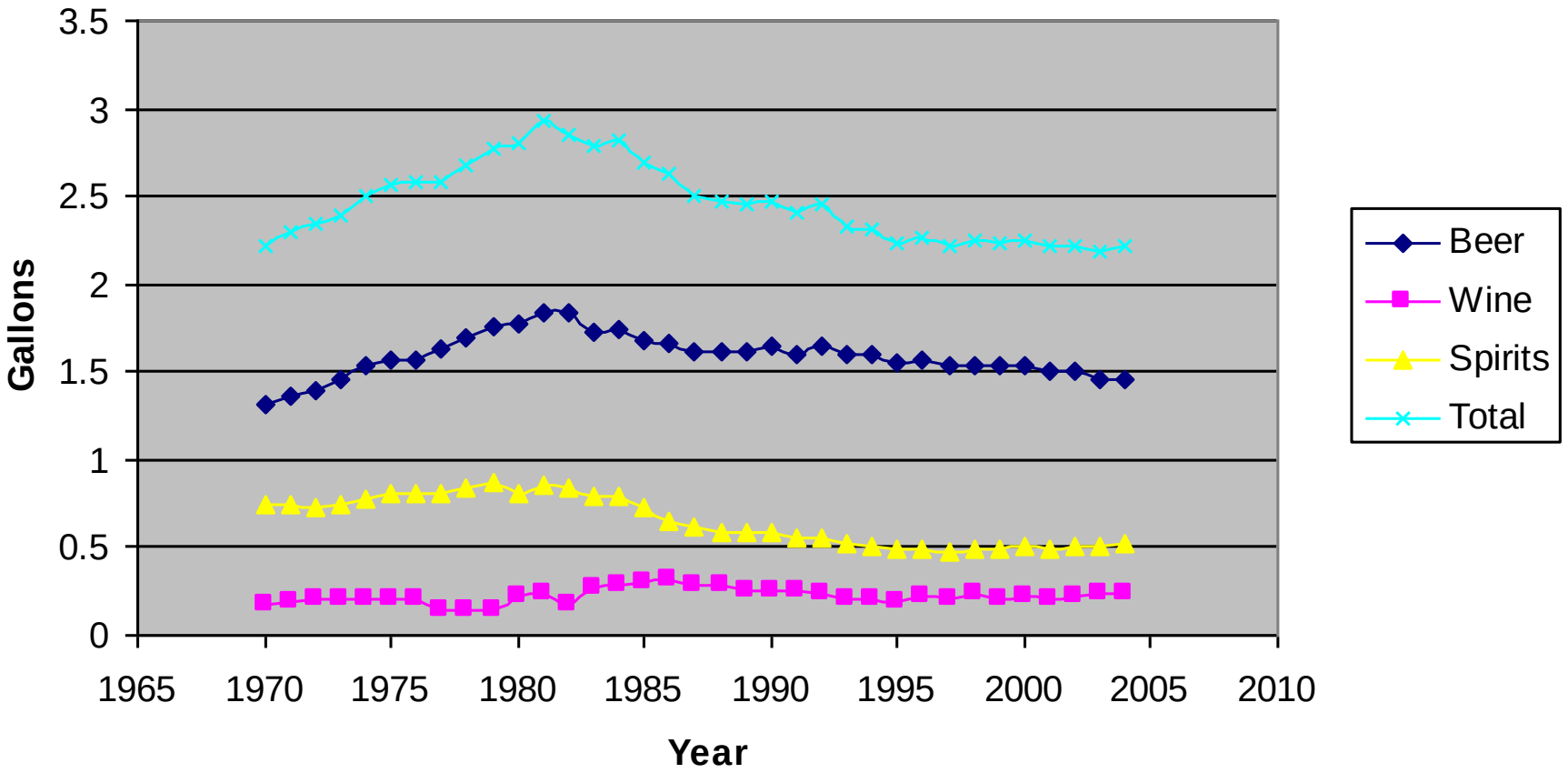
What's a Standard Drink?

A standard drink in the United States is any drink that contains about 14 grams of pure alcohol (about 0.6 fluid ounces or 1.2 tablespoons). Below are U.S. standard drink equivalents. These are approximate, since different brands and types of beverages vary in their actual alcohol content.

12 oz. of beer or cooler	8–9 oz. of malt liquor	5 oz. of table wine	3–4 oz. of fortified wine	2–3 oz. of cordial, liqueur, or aperitif	1.5 oz. of brandy	1.5 oz. of spirits
	8.5 oz. shown in a 12-oz. glass that, if full, would hold about 1.5 standard drinks of malt liquor		(such as sherry or port) 3.5 oz. shown	2.5 oz. shown	(a single jigger)	(a single jigger of 80-proof gin, vodka, whiskey, etc.) Shown straight and in a highball glass with ice to show the level before adding a mixer*
						
~5% alcohol	~7% alcohol	~12% alcohol	~17% alcohol	~24% alcohol	~40% alcohol	~40% alcohol
12 oz.	8.5 oz.	5 oz.	3.5 oz.	2.5 oz.	1.5 oz.	1.5 oz.

Alcohol Consumption

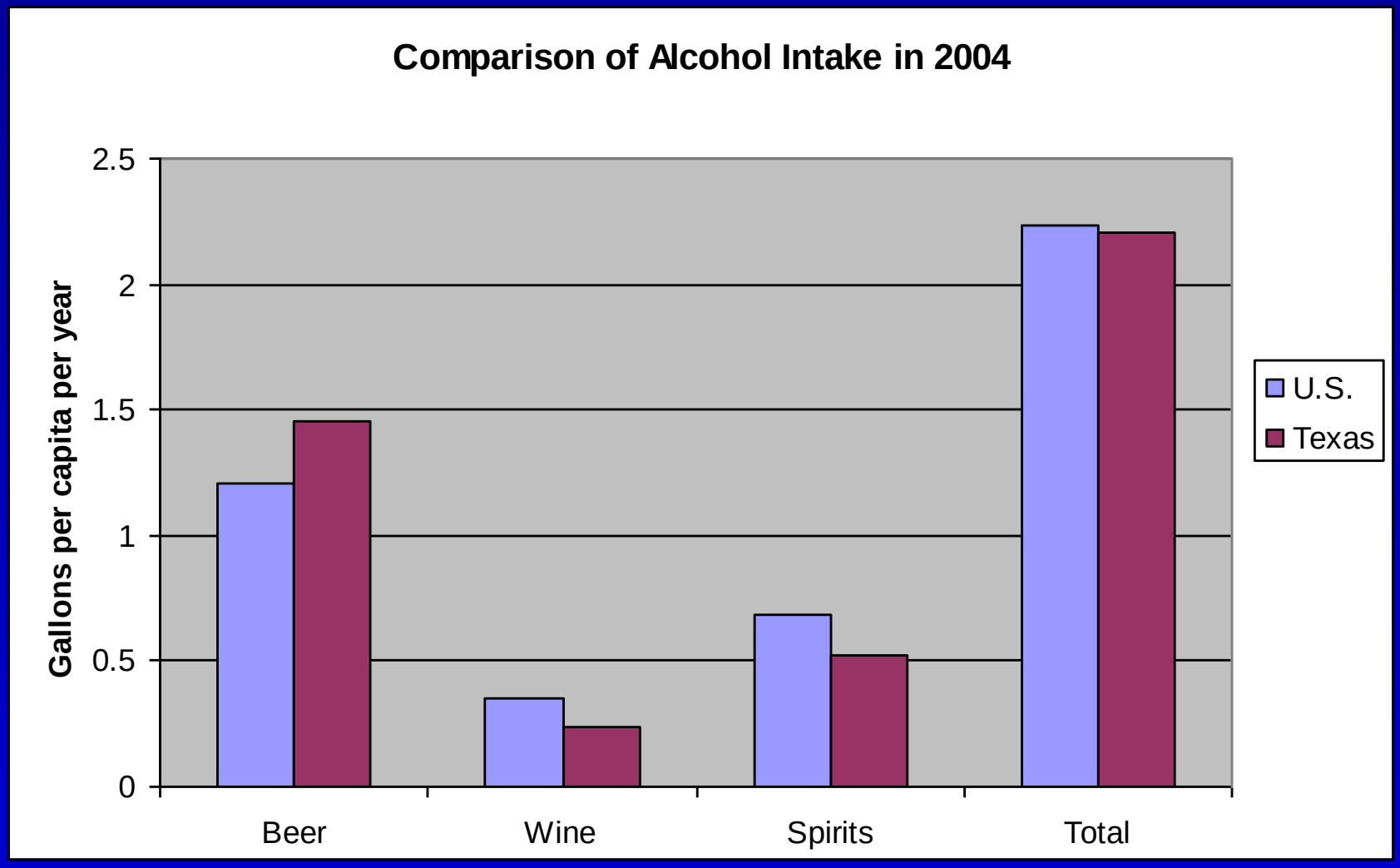
2.21 gal Ethanol = 471 drinks



http://www.niaaa.nih.gov/Resources/DatabaseResources/QuickFacts/AlcoholSales/consum03.htm

Alcohol Consumption

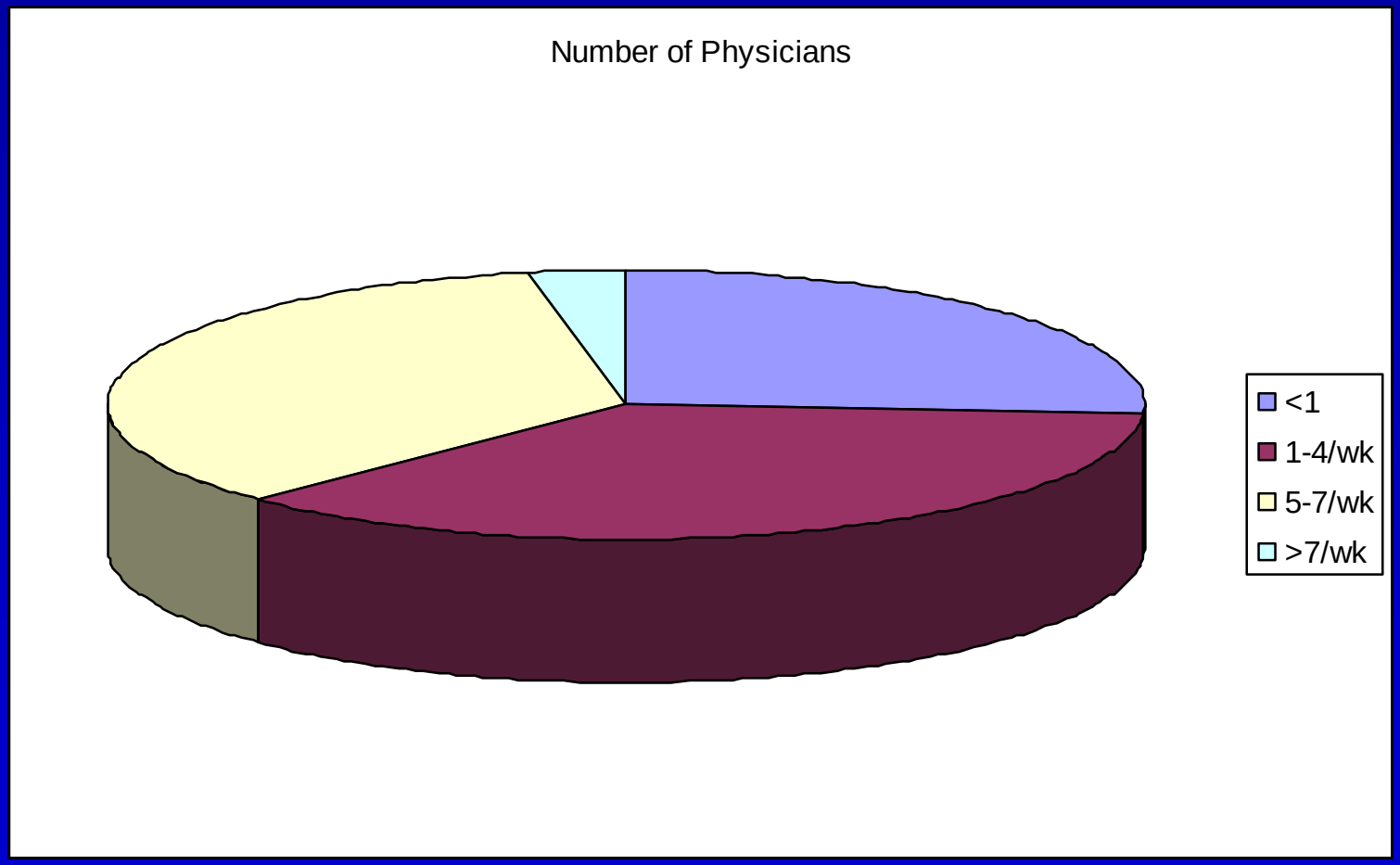
2.21 gal Ethanol = 471 drinks



http://www.niaaa.nih.gov/Resources/DatabaseResources/QuickFacts/AlcoholSales/consum03.htm

Alcohol Consumption in Physicians

- Physicians' Health Study I
- 21,601 physicians
- F/U from 1982-1005
- 3% over 7/wk



Djousse L et al. Circulation 2007;115:34.

Alcoholism

- Ask about alcohol use – “Do you sometimes drink beer, wine or other alcoholic beverages?”
- How many days in the last year have you had 5 (women=4) or more drinks in a day? (one or more is a positive answer)
- Need further evaluation if positive = on the average, how many days per week do you drink?, and on the average how many drinks do you have on a day that you drink?

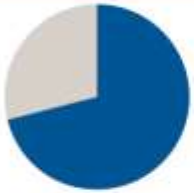
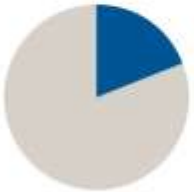
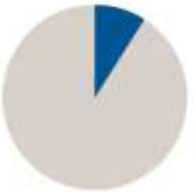
http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/guide.pdf

Alcohol Use Disorders

- Alcohol abuse: Drinking has repeatedly caused (in the last 12 months) one or more of the following:
  - Risk of bodily harm (drink and drive)
  - Relationship trouble (family or friends)
  - Role failure (home, work, or school)
  - Run-ins with the law (arrests or other legal problems)
- Alcohol dependence: Drinking is associated (in the last 12 months) three or more of the following:
  - Unable to stick to drinking limits
  - Unable to cut down or stop
  - Shown tolerance
  - Shown signs of withdrawal
  - Drinking despite problems
  - Spent lot of time drinking or anticipating drinking or recovering from drinking
  - Spent less time on other matters that used to be important or pleasurable

Recommend **abstinence** for alcohol use disorders

http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/guide.pdf

WHAT'S YOUR DRINKING PATTERN?	HOW COMMON IS THIS PATTERN?	HOW COMMON ARE ALCOHOL DISORDERS IN DRINKERS WITH THIS PATTERN?
Based on the following limits—number of drinks: On any **DAY**—Never more than **4** (men) or **3** (women) **– and –** In a typical **WEEK**—No more than **14** (men) or **7** (women)	**Percentage of U.S. adults aged 18 or older***	**Combined prevalence of alcohol abuse and dependence****
Never exceed the daily or weekly limits (2 out of 3 people in this group abstain or drink fewer than 12 drinks a year)	 **72%**	fewer than **1 in 100**
Exceed only the daily limit (More than 8 out of 10 in this group exceed the daily limit *less than once a week*)	 **16%**	**1 in 5**
Exceed both daily and weekly limits (8 out of 10 in this group exceed the daily limit *once a week or more*)	 **10%**	almost **1 in 2**

* Not included in the chart, for simplicity, are the 2 percent of U.S. adults who exceed *only* the weekly limits. The combined prevalence of alcohol use disorders in this group is 8 percent.

Metaphysical Aspects of Health - Spiritual/Faith

- Belief systems
- Sources of comfort
- Community
- Rituals
- Effects on vocation

- "How do you find the courage to get out of bed and face the day?"
- "How do you find comfort when things aren't going so well?"
- "Who or what supports you in your daily journey?"
- "What meaning does your present circumstance hold for you?"
- "What do you hope for in the future?"

O'Reilly ML et al. "Spirituality and Mental Health Clients" J Psychosoc Nurs Ment Health Serv. 2004;42:44 .

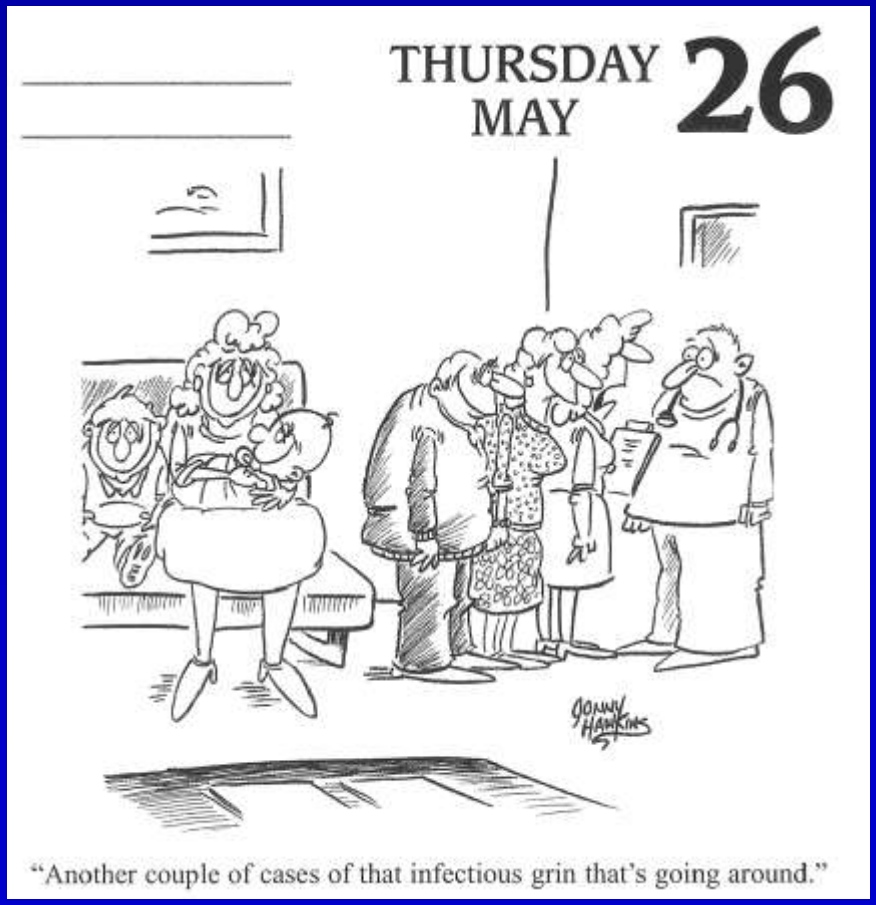
Metaphysical Aspects of Health - Psychosocial

- "Well-being is … is a way of flourishing that underlies and suffuses all emotional states, one that embraces all of the vicissitudes of life. In short, it is a way of engaging with life based on a wholesome way of life, mental balance, and a sound understanding of reality.*"
  - Intention and Volition (stronger commitment to action than desire alone)
  - Attention (sustained voluntary focus)
  - Cognition (engaging with experience, reality vs fantasy)
  - Affectation (emotional stability, responsiveness)

*Wallace BA et al. "Mental Balance and Well-Being: Building Bridges Between Buddhism and Western Psychology" American Psychologist. 2006;61:690-701.

Therapeutic Milieu

- Model behaviors for patients
- Happy helpful people – clerical, nursing, provider, administrator
  - Empathy
- Pleasant surroundings
- Accurate schedule



"Another couple of cases of that infectious grin that's going around."

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