Cardiovascular Disease

Stanford Geriatric Center Webinar Series:
Care of Diverse Elders and their Families in Primary Care
September 29, 2011

Latha Palaniappan, MD, MS
Ariel Holland, BA
Palo Alto Medical Foundation Research Institute

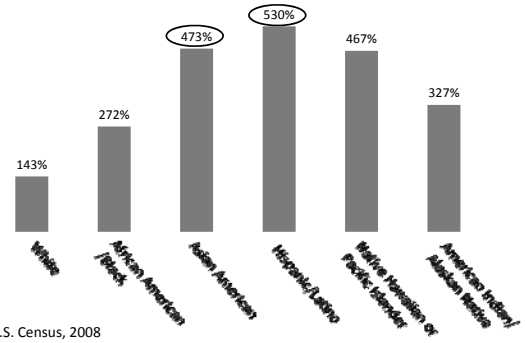
Acknowledgements & Disclosures

- We thank the Stanford Geriatric Education Center for inviting us to present on this webinar topic.
- We have no conflicts of interest to report

Learning Objectives

- Identify differences in cardiovascular disease (CVD) morbidity and mortality among diverse elders
- Identify risk factors that explain racial/ethnic disparities in CVD
- Identify CVD treatment and care recommendations, with a focus on potential differences

% Change in U.S. Population (Age 60 and Over): 2010 to 2050



Source: U.S. Census, 2008

Limitations of Research in Racial/Ethnic Minorities

- Conducted mostly in Blacks/African Americans and Mexican Americans.
- Heterogeneity in demographic, cultural, and CVD risk factors within the broader racial/ethnic categories (e.g., Asian Indian vs. Asian Americans as a group)
- Most national data is self-report and may underestimate CVD and risk factor prevalence, particularly for racial/ethnic minorities.

Cardiovascular Disease Overview

- Cardiovascular disease (CVD) encompasses a spectrum of diseases:
  - Coronary heart disease (CHD)
  - Stroke
  - Peripheral arterial disease (PAD)
  - Congestive Heart Failure (CHF)
  - Hypertension (HTN)
  - Dyslipidemia
- Existing data show that heart disease is the leading cause of death for persons over age of 65, irrespective of sex, race, or Hispanic origin.
  - Asians and Pacific Islanders were grouped together, which may mask differences between these two groups.
- Stroke was the third leading cause behind cancer.

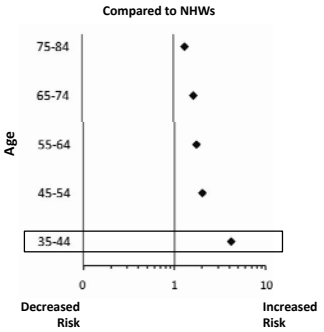
Source: Centers for Disease Control and Prevention, National Vital Statistics System, 2006.

CVD and Blacks/African Americans

- Blacks/African Americans have higher prevalence rates of stroke, CHF, and PAD, compared to Non-Hispanic Whites (NHWs).
- Stroke and CHD mortality rates are also higher among Blacks/African Americans, compared to NHWs.
- Blacks/African Americans tend to be more likely to:
  - report stroke symptoms
  - experience transient ischemic attacks
  - be hospitalized for stroke
- Rates of amputation are higher for Blacks/African Americans with PAD, compared to NHWs.

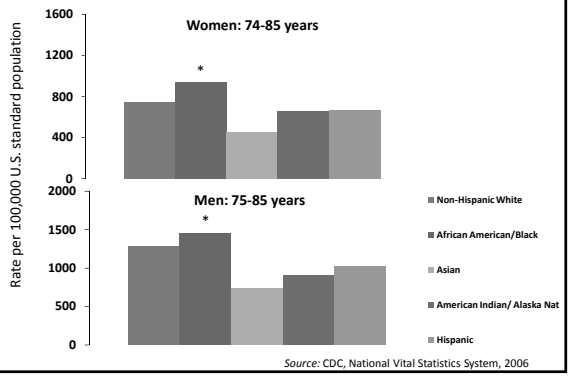
Sources: Heart Disease and Stroke Update, Circulation, 2010; Cruz-Flores S, Stroke, 2011; Rowe V, J Vasc Surg, 2010.

Higher First-Time Stroke Risk for Blacks/African Americans



Source: Broderick J, Stroke, 2006.

Blacks/African Americans Have Higher CHD Mortality than Other Racial/Ethnic Groups



Source: CDC, National Vital Statistics System, 2006

CVD and Hispanic Americans

- Population-based studies have demonstrated higher stroke incidence and prevalence for Hispanic Americans, compared to NHWs.
- Hispanic Americans with self-reported CHD are more likely to report fair/poor health, compared to NHWs.
- Hispanics are more likely to be hospitalized due to CHF than NHWs.
- Hispanics with PAD are more likely to undergo amputation, compared to NHWs.

Sources: Cruz-Flores S, Stroke, 2011; Hayes DK, Prev Chronic Dis, 2011; White H, Circulation, 2005; Rowe V, J Vasc Surg, 2010

Hispanic Paradox

- Hispanics have lower socioeconomic status and higher rates of other CVD risk factors, compared to NHWs.
- However, Hispanics have lower mortality rates due to CVD, compared to NHWs.
- They also have paradoxically low all-cause mortality.
- Explanations: salmon hypothesis, healthy migrant effect. Studies have shown that these do not fully explain this paradox

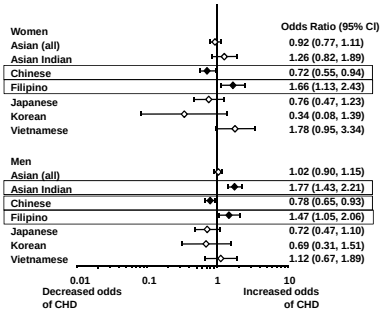
Source: Abraido-Lanza A, AJPH, 1999. Palloni

CVD and Asian Americans

- Higher prevalence rates of CHD for Asian Indians and Filipinos, compared to NHWs.
- Lower prevalence rates of CHD for Chinese and Japanese, compared to NHWs.
- Chinese and Japanese have higher proportionate mortality due to stroke compared to NHWs.
- Chinese Americans have strokes at a younger age, with a greater proportion of hemorrhagic strokes, compared to NHWs.

Sources: Enas EA, Arch Int Med, 1997; Holland AT, Ann Epi, 2011; Klatsky A, Ethn Dis, 2005; Fang J, Ethn Dis, 2004.

Asian Indians and Filipinos Increased Odds of CHD



NHW = Non-Hispanic White.
Filled diamonds indicate statistical significance compared to NHWs at ($P < 0.05$)

Source: Holland AT, Ann Epi, 2011.

CVD and American Indians/Alaska Natives

- According to the Strong Heart Study, almost a quarter of American Indian men and women, ages 45 to 74, had some evidence of heart disease.
- Stroke incidence and prevalence are higher among American Indians/Alaska Natives compared to NHWs.
- American Indians with self-reported CHD are more likely to report fair/poor health, and a greater number of physically unhealthy and activity limited days, compared to NHWs.

Sources: Strong Heart Study, 2001; Cruz-Flores S, Stroke, 2011; Hayes DK, Prev Chronic Dis, 2011.

Native Hawaiian and other Pacific Islanders (NHOPIs) and CVD

- National data for NHOPIs is scarce, with the largest populations in Hawaii and California.
- Hawaii vital statistics data show that Native Hawaiians had the highest CHD mortality compared to all other racial/ethnic groups (372 vs. 235 per 100,000 population).
- Stroke mortality was second highest for Native Hawaiians, behind Filipinos, compared to other racial/ethnic groups.

Source: Johnson DB, Pac Health Dialog, 2004.

CVD Risk Factors

- Racial/ethnic minorities have greater prevalence rates of major CVD risk factors.
  - Biological Risk Factors: Hypertension, Dyslipidemia, BMI, Diabetes
  - Behavioral Risk Factors: Smoking, Physical Inactivity, Poor Diet
  - Socioeconomic risk factors: Education, Poverty, Social Connections
- The prevalence of ≥2 self-reported risk factors was highest among racial/ethnic minorities (BFRSS, 2003):
  - Blacks/African Americans (48.7%)
  - Hispanics (39.6%)
  - American Indians/Alaskan Natives (46.7%)
  - NHWs (35.5%)

Source: BRFSS, MMWR, 2005.

CVD Awareness

- According to a national telephone survey, Blacks/African Americans and Hispanics have lower awareness of CHD, stroke and PAD, compared to NHWs.
- Community-based studies have demonstrate low awareness of heart disease and stroke signs and symptoms among Chinese, Korean, and Vietnamese participants .

Sources: AHA Heart Disease Stroke Update, 2010. Hirsch AT, Circulation, 2007; Ton T. J Immigrant Minority

Biological Risk Factors: Hypertension

- Hypertension Prevalence
  - Higher rates have been found for Blacks/African Americans, American Indians/Alaska Natives, NHOPIs and Filipinos, compared to NHWs.
- Hypertension Severity and Control
  - Blacks/African Americans are more likely to have higher mean blood pressure values, develop hypertension at younger ages, have uncontrolled blood pressure, and have lower medication adherence, compared to NHWs. (COSMOS Study)

Sources: Cruz-Flores S, Stroke, 2011; Krousel-Wood M, Med Clin North Am, 2009

Biological Risk Factors: Dyslipidemia

- Higher prevalence rates of dyslipidemia for Mexican Americans, American Indians, NHOPIs, and Asian Indians, compared to NHWs.
- Cholesterol Screening
  - Blacks/African Americans and Mexican Americans were less likely to report serum cholesterol screening than NHWs.
- Medication
  - Mexican-Americans were less likely than NHWs to be aware of high cholesterol.
  - Even when identified as having high cholesterol, Blacks/African Americans and Mexican Americans were less likely than NHWs to be taking cholesterol-lowering agents.
- Control
  - Among new statin users with dyslipidemia, Blacks/African Americans were 36% less likely to achieve low-density lipoprotein goals over time, compared to NHWs.

Sources: NHANES, Heart Disease and Stroke Statistics Update 2010; Yood MU, *Am Heart J, 2006*

Biological Risk Factors: Obesity and Diabetes

- Black/African American (49.6%) and Mexican American women (45.1%) were more likely to be obese than NHW women (33.0%).
- The prevalence of diabetes is twice as great among Blacks/African Americans and Mexican Americans, with high rates found for American Indians and Asian Americans, compared to NHWs.
- The prevalence of type 2 diabetes and impaired glucose tolerance is higher among NHOPI than among NHWs.
- Higher rates of diabetes have been found for Asian Americans at lower BMI values.

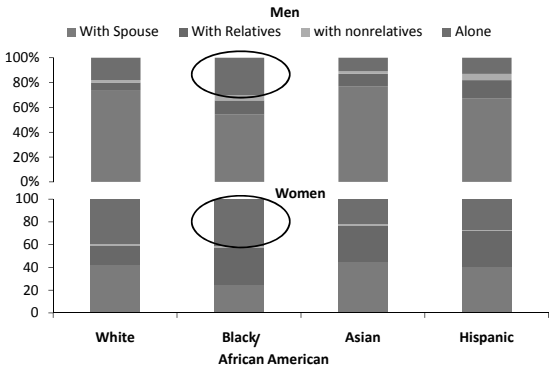
Sources: NHANES, 2007-2008; Cowie CC, Diabetes Care, 2010; Mau M, Epi

Education and Poverty: Ages 65 and older

- Older Blacks/African Americans, Hispanics, and Asian men were more likely to live in poverty, and less likely to graduate from high school or college, than NHWs .
- While Asians have higher education levels on average, 12.7% Asian American elders possess <u>no education</u> compared to only 1.4% and 5.7% of the nation's NHW and Black/African American older population .

Sources: U.S. Census, Annual Social and Economic Supplement, 2007; http://digital.wustl.edu/e/etd/pdf/Tan_wustl_0252D_10026.pdf

Social Connections Vary



Source: Federal Interagency Forum on Aging-Related Stats. Older Americans 2010.

Behavioral Risk Factors

- Smoking
  - High prevalence rates are found for American Indians/Alaska Natives and NHOPIs, compared to NHWs.
  - Blacks/African Americans and Hispanics are less likely to be asked about their smoking habits or offered cessation interventions.
  - Blacks/African Americans are more likely than NHWs (68.9% v. 22%) to smoke mentholated cigarettes which have been shown to enhance smoking initiation and inhibit quitting.
- Physical Activity (PA)
  - Blacks/African Americans , Hispanics, NHOPIs, and American Indians report lower levels of physical activity, compared to NHWs.
- Diet
  - African Americans and American Indians/Alaska Natives had worse overall scores on the USDA Healthy Eating Index, compared to NHW.
  - Highly acculturated Hispanics and Chinese reported fewer servings of fruits and vegetables per day compared with those not highly acculturated.

Sources: Cokkinides VE, Am J Prev Med, 2008; Doolan DM, Nurs Res, 2006; CDC, MMWR, 2009; Artinian NT, Circulation, 2010; Mau M, Epi Review, 2009; Kumanyika, Nutr Review, 2006.

Self-reported health: 65 yrs and Older

	White		Black		Asian		Hispanic	
	65-74	75-84	65-74	75-84	65-74	75-84	65-74	75-84
Hypertension	46.0	51.7	**65.5**	**71.0**	**51.6**	**58.6**	**45.6**	**49.3**
Diabetes	15.2	14.4	**26.5**	**21.9**	14.7	14.6	**24.2**	**23.5**
Any Leisure Time PA	56.2	45.4	**37.8**	**26.0**	66.3	56.8	**40.9**	**28.8**
Regular Leisure Time PA	28.6	19.7	**16.7**	**8.1**	34.8	32.1	**20.2**	**12.9**
Never smoked	44.0	52.4	52.2	58.6	66.1	72.0	64.2	66.9
Healthy Weight	34.1	42.7	**24.3**	**35.1**	61.0	67.5	**29.3**	**39.1**

Source: NHIS 2000-2003, Schoenberg C, Adv Data, 2006

Cultural Competency

- Cultural competency
  - Possessing knowledge, awareness, and respect for other cultures.
- Ethnocentrism
  - The conviction that one's own culture is superior, can hinder effective cross-cultural care.
- Stereotyping
  - Mistaken assumptions about an individual based on group membership
- Generalizations
  - Awareness of cultural norms

Source: Juckett G, Am Fam Phys, 2005; Lipson JG & Dibble SL (eds). Culture and Clinical Care, 2005.

Cultural Assessment

- ASK perspective: Awareness, Sensitivity, and Knowledge
- Cultural Assessment at a minimum should ask the following questions:
  - What is the patient's ethnic affiliation?
  - Who are the patient's major support persons and where do they live?
  - With whom should we speak about the patient's health or illness?
  - What are the patient's primary and secondary languages, speaking and reading abilities?
  - What is the patient's economic situation?

Source: Lipson JG & Dibble SL (eds). Culture and Clinical Care, 2005.

Cultural Beliefs and CVD

- Illness Beliefs
  - Blacks/African American: Natural or supernatural causes
  - Hispanic: Act of God or natural causes
  - American Indian/Alaska Native: Violation of taboos or natural harmony
  - East Asian: Yin-Yang (Cold and Hot) or spiritual causes
  - Asian Indian: karma or imbalance of bodily humors
- Dietary Beliefs and Illness
  - American Indian/Alaska Native: view water as sacred
  - East Asian: "Cold" or "Hot" foods to treat imbalances of Yin-Yang
  - Asian Indian: refrain from spicy foods or dairy
- Self-Care Management
  - Many diverse populations may use home remedies or treatments (teas, herbs)
  - Fear blood draws and surgical procedures (East Asians, American Indian/Alaska Natives)

Source: Lipson JG & Dibble SL (eds). Culture and Clinical Care, 2005.

4 C's of Culture: A Mnemonic for Health Care Professionals

- What do you CALL your problem?
  - patient's perception
- What do you think CAUSED your problem?
  - patients beliefs
- How do you COPE with your problem?
  - alternative medicines or treatments
- What are your CONCERNS regarding your condition or recommended treatment?
  - patient perception and fears

Source: Galanti GA. Caring for Patients from Different Cultures. 2004

Differential Importance of Risk Factors for CHD, Stroke, and PAD

- CHD
  - Biological Risk Factor Treatment: dyslipidemia, hypertension, diabetes
  - Behavior Change: socializing, smoking cessation, diet, physical activity
- Stroke
  - Hypertension is the biggest risk factor for stroke
  - Biological Risk Factor Treatment: antihypertensives
  - Behavior Change: sodium reduction
- PAD
  - Biological Risk Factor Treatment: aspirin and antiplatelet therapy, and lipid-lowering drugs
  - Behavior Change: exercise training, smoking cessation

Treatment of Dyslipidemia in Elderly Populations

- Most clinical trials have been conducted in largely middle-aged, white populations.
- Risk for side effects from statins may be increased in the elderly due to polypharmacy
- However, clinical trials DO support the primary and secondary prevention of CVD with statin treatment in the elderly.
- Pravastatin recommended due to kidney as opposed to liver clearance.
- While FDA recommends against simvastatin 80 mg, intensive treatment of elderly with other statins (80 mg dose) is supported by clinical trials.
- Few studies support use of fibrates in the elderly, and there have been no trials performed with niacin in older adults.

Sources: Shanmugasundaram, 2010, Clin Cardiol.; FDA: Limit Use of 80mg Simvastatin, 2011; www.fda.gov/ForConsumers/ConsumerUpdates/

ATP III Guidelines for LDL-C Therapies in Older Adults

- Primary prevention in the elderly:
  - Lifestyle modification
  - Standard risk assessment commonly used in adults may not be adequate, use clinical judgment
  - Lipid-lowering therapy should be considered in patients with ≥2 risk factors or subclinical atherosclerosis
  - Similar targets of LDL-C *<130 mg/dL with 2 or more risk factors*
- Secondary prevention in the elderly:
  - No age restrictions in patients with established CHD
  - Similar targets of LDL-C *<100 with known CVD or multiple risk factors*

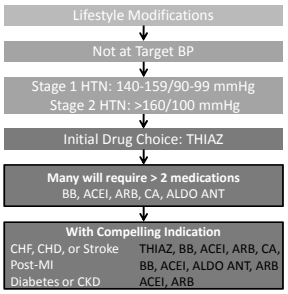
Sources: ATP III Guidelines, 2004; Shanmugasundaram, Clin Cardiol , 2010.

Hypertension Treatment in Elderly

- Treatment led to significant risk reduction in heart failure, death from CVD, and death from all causes in patients 80 years and older.
- Diagnosis: ≥ 3 BP measures on ≥ 2 separate visits (patient rested 5 min)
- Providers should determine BP, and if elevated:
  1) Identify reversible and/or treatable causes
  2) Evaluate for organ damage
  3) Assess for other CVD risk factors/comorbid conditions
  4) Identify barriers to treatment adherence
- Targets in 65 years and older:
  - <140/90 mmHg or <150/100 mmHg (if that target is unreachable)
  - < 130/65 mmHg should be avoided
- Initial Medical Therapy:
  - thiazide diuretic (i.e., hydrochlorothiazide)
  - Prescribe at lowest does and increase gradually to achieve target
  - Often takes combination therapy (≥ 2 meds) to achieve adequate control
- Considerations:
  - Co-morbidities and polypharmacy
  - Black/African American patients (w/ HTN and CHF) may benefit from isosorbide dinitrate plus hydralazine

Source: Aronow WS, J Am Coll Cardiol, 2011.

Principles of Hypertension Treatment



Abbreviations:
THIAZ – thiazide diuretics, BB – beta-blockers, ACEI – Angiotensin-converting enzyme inhibitor, ARB – Angiotensin II Receptor Blockers, CA – calcium antagonists, ALDO ANT - aldosterone antagonist

Source: Aronow WS, J Am Coll Cardiol, 2011.

Pharmacogenomics and CVD Treatment

- Patients' drug responses vary considerably by race/ethnicity
- Pharmacogenomics attributes this difference to the population distribution of genetic polymorphisms that affect drug metabolism, transport, and target.
- Check FDA labels and warnings regarding racial/ethnic pharmacogenomic differences
- Examples:
  - Statins: FDA label warns,"initiation of Crestor therapy with 5 mg once daily (instead of 10 mg) should be considered for Asian patients."
    - organic anion-transporting polypeptide OATP1B1 (SLCO1B1) in Chinese and Japanese
  - Warfarin: Lower warfarin doses for Chinese, Japanese, and Koreans and higher doses for Blacks/African Americans and Asian Indians
    - Two Genes: cytochrome P450 2C9 (*CYP2C9)* and vitamin K epoxide reductase (*VKORC1)*
  - Clopidogrel (Plavix): Asian (Chinese and Japanese) Americans at high risk of having genetic variant that leads to decreased inhibition of platelets
    - cytochrome P450 2C19 (CYP2C19)

Sources: Tomlinson B, Clin Pharmacol 2010; Tan GM, Pharmacogenomics, 2010; Mega

Behavior Change: Improving Social Environment

- Diverse elders may not participate in social/recreational activities:
  - language barriers, cultural differences, religious taboos, lack of funding or transportation
- How to Build a Supportive Social Environment?
  - Identify sources of social support
  - Provide access to information/services (e.g., culturally/linguistic tailoring)
  - Identify barriers to participation and brainstorm solutions
- Resources:
  - Community Partnership for Older Adults (CPOFA) http://www.partnershipsforolderadults.org/aboutcpfoa/
  - Community Ambassador Program for Seniors (CAPS) - volunteer community ambassadors serve seniors in their own communities, own language, within their own cultural norms, and where seniors live, worship, socialize, and learn. http://www.capseniors.org/
  - Aging Services of California http://www.aging.org/

Behavior Change: Smoking Cessation

- Pharmacotherapy, including nicotine replacement (gum, patch, nasal spray) and sustained release bupropion is effective in racial/ethnic populations.
- Higher doses of pharmacotherapy may be needed for those who smoke menthol cigarettes or within 30 minutes of awakening, even if they are light smokers.
- Culturally/linguistically tailored counseling in combination with pharmacotherapy may result in higher cessation rates for diverse populations.

Sources: Robles GI, Clin Therap, 2008; Lawrence D, Prev Med, 2003.

Cognitive Behavioral Techniques: Diet and Physical Activity Change

- Cultural tailoring: addressing linguistic/literacy needs
- Goal setting: Specific, measurable, realistic but challenging, within timeframe
- Self-monitoring: Increase awareness of behaviors/identify barriers
  - handwritten diaries, online logs, text or email reminders
- Feedback and reinforcement: multiple sessions - follow-up at 6 weeks and then at 3-month intervals
- Modeling: cooking class, peer observation, etc
- Motivational Interviewing: individual-centered, explore/resolve ambivalence to change
- Problem Solving: identify problem, brainstorm solutions
- Care Coordination: group interventions, nurse-led multidisciplinary teams, with community involvement, especially for racial/ethnic minorities.

Source: Artinian NT, Circulation, 2010.

Behavior Change: Dietary and Physical Activity

- Counseling instruction and materials: culturally relevant recipes and physical activity, illustrated nutrition guides,
- Structured diet assessment and treatment program: dietary counseling, dietitian referral and follow-ups
- Physician Involvement: matching race/ethnicity, performance reports, chart prompts
- Community Resources: community/senior centers and use of health/community worker
- Several studies, demonstrated that multiple lifestyle changes can be undertaken that lead to significant CVD risk reduction in racial/ethnic minorities.

Source: Artinian NT, Circulation, 2010.

Caloric Intake Recommendations

- Women ages 50 and older:
  - Low Physical Activity: 1,600 calories a day
  - Moderately active: 1,800 calories a day
  - Active: 2,000 to 2,200 calories a day
- Men ages 50 and older:
  - Low Physical Activity: 2,000 calories a day
  - Moderately active: 2,200 to 2,400 calories a day
  - Active: 2,400 to 2,800 calories a day

http://www.nia.nih.gov/HealthInformation/Publications/HealthyEating.htm

Dietary Recommendations

- Eat many vegetables and fruits (2-2.5 and 1.5-2 cups)
- Aim for half of total whole grains (approximately 3-3.5 oz)
- Recommended protein intake: 0.8 g/kg body weight per day
- Consume fish, especially oily fish, at least twice a week
- Limit intake of saturated fat to <7% of energy, trans fat to <1% of energy, and cholesterol to < 300 mg/day
- Minimize intake of beverages and foods with added sugars
- Choose and prepare foods with little or no salt
  - <1500 mg/day (< 50 years), <1,300 mg/day (51 to 70 years), <1,200 (> 70 years)
- If you consume alcohol, do so in moderation (Women 1/day, Men 2/day)

Sources: ADA Dietary Guidelines for Americans 2010; AHA, Know Your Fats; Houston D, J Am Diet Assoc, 2009.

Physical Activity Guidelines: Age 65 and Older

- Aerobic Activity
  - At least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity or
  - 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination
  - Episodes of at least 10 minutes
- Strength Training
  - Moderate or high intensity ≥ 2 days a week
  - Involve all major muscle groups
  - Resistance weights (10-15 repetitions per exercise)
- Balance Activities
  - 3 times a week
  - 90 minutes a week (balance combined with strength training)

Sources: DHHS, 2008 Physical Activity Guidelines for Americans; Houston D, J Am Diet Assoc, 2009

Weight Management in Elderly

- Relative risk of morbidity and mortality among overweight/obese older adults is lower than for middle-aged adults.
- However, the absolute risk of overweight and obesity on morbidity and mortality increases with age.
- Age-related changes in body composition → underestimate fatness based on BMI
  - Losses in height (3 cm in men and 5 cm in women) and muscle mass
  - Waist circumference cut-points may be more useful
- Obesity treatment should be based on potential benefits of weight reduction for:
  - Day-to-day functioning
  - reduction of future CVD events
  - Patient motivation

Source: Houston D, J Am Diet Assoc, 2009.

Weight Loss Recommendations in Obese Elderly

- Reduction of 500 to 750 kcal/day → 1 to 1.5 lb/week of weight loss
- Macronutrient Composition:
  - 15% to 30% protein
  - 40% to 60% carbohydrates
  - 25% to 30% fats
- Higher protein intake: 1.0-1.2 g/kg per day
- Key nutrient requirements on a hypocaloric diet:
  - Vitamin D (800 to 1,000 IU/day)
  - Vitamin B-12 (2.4 μg/day)
  - Fiber (Women: 21g, Men: 30g)
  - Fluids (Women: 71-91 fl oz/day, Men: 88-125 fl oz/day)
- Strength training is especially important to reduce sarcopenia (low muscle mass) in elder adults on a weight loss program.

Sources: Houston D, J Am Diet Assoc, 2009.

Resources for Patients and Providers

- **Patient Education materials**
  - American Heart Association http://educationpackets.heart.org/ (English and Spanish)
  - National Heart, Lung, and Blood Institute http://www.nhlbi.nih.gov/health/healthdisp/index.htm (African American/Blacks, Hispanics/Latinos, American Indians/Native Alaskans, Asian/Pacific Islanders)
  - USDA: Cultural and Ethnic Nutrition Resources: http://www.nal.usda.gov/fnic/pubs/ethnic.pdf
  - American Indian http://americanindianhealth.nlm.nih.gov/heart-diseases.html
  - National Institute on Aging (English and Spanish) http://www.nia.nih.gov/HealthInformation/
  - NIH Senior Health http://nihseniorhealth.gov/index.html
- **Continuing Education and Community Resources**
  - Hartford Institute for Geriatric Nursing: http://consultgerirn.org/resources
  - California Area Health Education Center http://www.cal-ahec.org/index.htm
  - New Jersey ACHDemy of Family Practice Hypertension Toolkit (African Americans) http://www.njafp.org/hypertension-toolkit/
  - American Geriatrics Society http://www.americangeriatrics.org/public_education/list_resources/
  - Council on Cardiovascular Care for Older Adults (CCCOA) http://www.cardiosource.org/acc/acc-membership/cardiovascular-care-for-older-adults.aspx
- **Cultural Diversity in Healthcare**
  - www.ggalanti.com
  - https://www.thinkculturalhealth.hhs.gov/

PRANA: South Asian Wellness Program

- PRANA (**PR**evention & **A**ware**N**ess for South **A**sians) at the Palo Alto Medical Foundation http://www.pamf.org/southasian/index.cfm

Thank you!

Please contact Latha Palaniappan (lathap@stanford.edu) or Ariel Holland (hollanda@pamfri.org) if you have any questions.