



Assessing Risk, Negotiating for Behavior
Change, Respecting Culture

Problem-based Learning
For
Nursing Students





U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES



National Institutes of Health



National Heart, Lung, and Blood Institute



The Office on Women's Health

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***The Heart Truth* Professional Education Program
Problem-based Learning for Nursing Students**

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Introduction

The Heart Truth Professional Education Program Problem-based Learning for Nursing Students

Educational Goals

For nursing students:

- To recognize gender differences in the epidemiology, diagnosis, and treatment of heart disease
- To recognize that heart disease is the leading cause of death in American women of all ethnicities

Targeted Learners

These problem-based learning cases are for both beginner and advanced students. Sections within the case module can be selected based on the learner's stage of knowledge and the learner's placement within the institution's established curriculum.

Most instructors will find these materials work best if beginner students (as an example, second, third, and fourth year nursing students) are encouraged to tackle issues related to basic knowledge of cardiovascular disease (CVD) such as:

- prevalence and incidence data, including racial, ethnic and gender differences
- risk factor identification, including racial, ethnic and gender differences in the prevalence and incidence of risk factors
- prevention strategies, focusing on lifestyle behavioral changes within the context of cultural diversity, ethnicity, race and gender differences

For the advanced learners (fourth year nursing students and nurse practitioner students), these cases lend themselves to learning issues related to clinical interventions for CVD, including:

- concepts of risk stratification and risk reduction strategies
- national guidelines for the prevention, treatment and diagnosis of CVD
- available resources for implementing guidelines, such as
 - resources for patients
 - tools to assist clinical decision making
- strategies to facilitate behavior changes in women
 - behavioral change theory
 - professional communication
 - cultural competency

Place in the Curriculum

This case and its accessory components are meant to supplement the users' established curriculum for cardiovascular disease. These cases are designed to improve students' knowledge and skills about approaching prevention, diagnosis, and treatment of cardiovascular disease in women. Prior to case presentation to the students, it is recommended that the students have received a basic introduction to the anatomy, histology and physiology of the heart, as well as to the history and physical examination.

Additional Materials

Additional materials created for *The Heart Truth* Professional Education Program include a case developed and tested for medical students and a standardized patient case. Course chairs and others involved in curricular development are encouraged to review these additional materials and to use and/or adapt them for the nursing curriculum as appropriate.

Essential Knowledge, Skills, and Behaviors to Be Demonstrated:

The beginning learner will be able to :

- Cite prevalence and incidence data of CVD and identify racial and gender differences in CVD prevalence and incidence
- Identify known CVD risk factors in women
- Identify gender and racial differences in the relative importance of the various risk factors for women
- Define the concept of CVD risk stratification
- Identify risk reduction strategies, including those involving lifestyle behavioral changes
- Summarize the current state of knowledge of how menopause and hormone therapy affect a woman's risk for developing CVD
- Calculate BMI
- Identify common (typical) presentations of CVD and identify gender differences in presentation

The advanced learner will be able to :

- Identify evidence-based patient education resources to support primary and secondary prevention and treatment of heart disease
- Calculate a woman's 10-year risk for CVD events using the Framingham criteria
- Cite the "Five A's" for behavioral counseling in smoking cessation
- Describe the pathophysiology of stable and unstable coronary syndromes

- Recognize the range of common clinical presentations for stable and unstable coronary syndromes in women and contrast these with those of men
- Describe testing modalities for diagnosing coronary heart disease and explain differences in test sensitivity and specificity for common tests by gender
- List appropriate initial diagnostic tests (those usually performed in the emergency department) for a female patient presenting with possible acute coronary syndrome

Additional Knowledge, Skills and Attitudes for Students Using the Complementary Standardized Patient (SP) Case/Video:

The student will be able to:

- State what biases may lead to the failure to diagnose CVD in women
- Identify psychosocial factors that influence, interfere with or delay women seeking treatment and early evaluation for symptoms suggestive of CVD
- Recognize that gender-specific and culture-specific communication styles may impact the clinician-patient interaction
- Apply behavioral change theories and strategies to clinical situations
- Identify stage of change readiness for the standardized patient and understand how this impacts her ability to modify lifestyle habits and behaviors
- Identify the patient's barriers to change
- Develop a plan to manage barriers and to move the patient toward a higher stage of readiness

**The Case of Mrs. Montoya:
Nursing Problem-based Learning Case
Facilitator's Guide**

Case Overview: The Case of Mrs. Montoya

Problem-based Learning (PBL) TUTOR GUIDE NOT For Distribution To Students

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treatment of cardiovascular disease in women. Prior to case presentation to the students, it is recommended that the students have received a basic introduction to the anatomy, histology, and physiology of the heart, as well as to the history and physical examination.

Endings to the Case

This case can be used in your PBL small group using three different approaches. There are two different endings to the case. Either of these two endings can be used separately. However, the case is meant to incorporate either/or Ending One or Ending Two depending on the choices made by the students in the group.

Ending One

Ending One concludes when the patient, Mrs. Montoya, a 58 year-old Latina woman presents at the emergency department (ED) after a massive myocardial infarction (MI). The students do not appropriately identify or work-up the cardiac disease symptoms in the outpatient setting. Therefore, Mrs. Montoya presents to the ED with an MI weeks after her visit.

Ending Two

Ending Two is completely different based on the student's choices in regards to the differential diagnosis and plan of care. Mrs. Montoya undergoes a dobutamine stress tolerance test that reveals her cardiac disease and she subsequently undergoes a four-vessel coronary artery bypass graft surgery.

Case Flow

At the end of Session One, the students should have CVD on their nursing assessment for Mrs. Montoya. Other problems on the list might include depression, asthma, anemia, breast cancer, hypothyroidism, and diabetes.

When they return for Session Two, the students will need to decide a plan of nursing care/management approach for Mrs. Montoya. Discussion about what lab tests might be beneficial and/or what testing/procedures might be indicated to further work-up Mrs. Montoya's complaints is necessary.

Test results will not be immediately available to the students. Instead, the tutor will give the students the test result/s only for the test the student's request with a rationale given for each test ordered.

If the students request an ECG they will receive a copy of a normal ECG. If they request a stress test (any type), they will receive the results of a dobutamine stress tolerance test.

If the students request a stress test and can justify the test because of Mrs. Montoya's cardiac risk factors (family history, high BMI, elevated cholesterol despite medication, and hypertension), dyspnea on exertion and chest discomfort with exertion, then the tutor should proceed with Ending Two.

If the students do not request a stress test then the tutor should proceed with Ending One. This allows the students to see the consequences of missing the diagnosis. After reviewing Ending One, the facilitator should encourage students to discuss what might have occurred if her cardiac risk factors had been assessed properly.

Tip

It may be helpful to provide Ending One and Ending Two to the tutor using two different colored papers to make it easier to distribute the correct ending depending on the group's actions.

Essential Knowledge, Skills, and Behaviors to Be Demonstrated:

The beginning learner will be able to:

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- Identify the patient's barriers to change
- Develop a plan to manage barriers and to move the patient toward a higher stage of readiness

Session One/ Part One

Today as part of your clinical rotation, you are in the outpatient clinic. Your nursing instructor asks you to be involved in the care of Ms. Amparo Montoya, a 58 year-old Latina woman who is a returning patient to clinic. You enter the room and ask what brings her to clinic today. She tells you that her close friend has been diagnosed with breast cancer and now she is worried too. "I can't feel a lump right now, but neither did she."

She thinks her last mammogram was two or three years ago.

"You see, I take care of my little grandson, Robert, because my daughter and her husband both work and if I have to come to the doctor, my daughter has to stay home to take care of him. I want to help her, not be a burden to her. Today she took off a couple of hours so I could come in."

"I'm so worried, my friend just had surgery and she's started chemo. I'm so worried about the care she is going to receive. She doesn't speak English. The chemo nurses can't find an interpreter. She's so tired. I get tired sometimes too. I think it's just because Robert is such a busy boy! He's two and he has lots of energy! But what if it's cancer? I take care of my family, I can't afford to be sick, too many people count on me."

You acknowledge her familial responsibilities; her concern for her friend as well as the concern for her own health and ask her "Can you tell me about your last mammogram visit? How was that experience? I'm curious as to why you've not been back."

"Not good" Mrs. Montoya replies. "I didn't want to go back there because of confusion with my insurance, it took so long and I had to get back to Robert and I heard on the news that annual mammograms might not be needed."

Key Exercise Prior to Continuing On to Part Two

Have the students formulate a list of patient interview questions prior to the next session. Ask them to consider and include rationale for the questions selected. Facilitate small group discussion about proposed interview questions during the next session and prior to moving on to the next phase of learning.

Learner Prompts/Suggested Topics for Discussion

- Communication: provider/patient interaction, language of preference, use of interpreters and influence on interactions
- Conveying empathy and respect to set the stage for communications/interactions, build trusting relationship, tangible provider questions to ask, statements to make
- Ethnic/cultural diversity - inquiring about ethnic heritage
- Latino culture, identifying cultural issues and conflicts; the concept of women "holding on" ("aguantar")-seeking/accessing health care later than sooner (attitudinal barriers and process barriers)
- Health issues related to menopause

- Chief/primary complaint
- Fatigue - Spanish connotation versus English connotation; understanding what the patient means by using the word "fatigue"; causes of fatigue
- Additional barriers to seeking health care

Session One/ Part Two

You assure Mrs. Montoya that you will discuss her breast health concerns with the physician, but that you would like to ask a few questions first. You tell her that you understand the word fatigue can mean many different things to many different people in different cultures and ask her, "What does being fatigued mean to you?" She tells you that she has felt a bit more tired for the past few weeks. You ask her to explain her tiredness more.

"Besides chasing after Robert all day, maybe it's because I don't sleep very well. I wake up at four or five in the morning and can't get back to sleep." She notices mild shortness of breath when playing with him at the park, which she attributes to her asthma. She has a history of mild asthma since childhood and occasionally uses an albuterol inhaler. She has never taken steroids for her asthma. She reports that she never has shortness of breath while at rest and has never experienced any chest pain.

She reports that although she never seems to get enough sleep, she still has energy to cook for her family, do the shopping, and keep up the house.

You find that Ms. Montoya does not have breast pain; she has not noticed any discharge from her nipples, any dimpling, or any other changes to her breasts. She doesn't usually do a monthly breast exam so she's not sure if she's had any breast lumps in the past or not.

"I don't think anyone in my family has had breast cancer, not that I know of. My uncle had lung cancer, but he smoked a lot after he moved to this country. Otherwise, my family is pretty healthy now except both my parents have high blood pressure. My father had a heart attack about 15 years ago when he was 61. That's when they moved in with my sister in El Salvador. I worry about them all the time, but I'm sure my sister is taking good care of them. He had to have surgery for his heart back then, but he's doing ok now. My mom and brother have diabetes, but they're mostly ok too, they try to eat better, but it's hard. I try to cook the things the doctor said to make, but...." She shrugs. "My two younger sisters and my children are very healthy - no diabetes, no high blood pressure, no cancer. My husband takes medication every day for high blood pressure too and he takes an aspirin for his heart. I worry he'll have a heart attack like my father; he works too hard."

She has had no changes in her weight. She reports that her appetite is fair, but that she sometimes just doesn't feel like eating. You ask about her mood and she states she worries a lot about her family. Her daughter and son-in-law live nearby and she takes care of her grandson full-time. You ask her if she has ever had any pressure or discomfort in her chest.

She replies, "Sometimes when I'm playing in the park with my grandson."

She says that she does not have a cough, although her son-in-law smokes. Neither she nor her husband smoke and she only allows her son-in-law to smoke outdoors.

Key Exercise Prior to Continuing On to Part Three

At this point, ask the students to think about and consider what they now know about Mrs. Montoya. Have them start a list including past medical history and review of systems information. Ask the students "What are you concerned about with Mrs. Montoya and her presentation to the clinic?"

Learner Prompts/Suggested Topics

- Stress in women's lives
- Symptoms of stress
- Cultural/racial differences regarding triggers of stress
- Role racism plays in life long attitudes towards healthcare - individual and institutional
- Breast health - guidelines and recommendations
- Risk factors for poor health outcomes
- Symptoms of menopause
- Past medical history
- Additional symptoms

Session One/ Part Three

You mention to Mrs. Montoya that you noticed in her chart that she has a history of hypertension as well as elevated cholesterol.

“Yes, I’m just like the rest of my family. Sometimes I eat too well.”

You also find in her chart that Mrs. Montoya had a positive PPD test and normal chest x-ray when she immigrated to the United States from El Salvador over 30 years ago, but she says that she has never had tuberculosis. You continue your history and finally ask if she and her husband have sexual relations, she smiles, looks away and says,

“I’m too old for that.”

You ask Mrs. Montoya to change into a gown and tell her that the medical student will be in to examine her and to ask further questions. You go out to present to the clinic nurse and attending physician:

Mrs. Montoya presents today concerned about breast cancer. She missed her last mammogram and is concerned today because a friend was recently diagnosed with breast cancer. Her last mammogram was approximately three years ago. She reports no breast pain, nipple discharge, or dimpling. Her obstetrical and gynecological history is significant for two uncomplicated vaginal births. Her periods stopped when she had an abdominal hysterectomy for symptomatic fibroids at age 46. She took oral estrogen after her hysterectomy but states one of her doctors took her off it a couple of years ago. She has not had any other surgery. She has never had an abnormal pap smear. She has a past medical history of hypertension and high cholesterol. Her medications include captopril 25 mg three times daily, hydrochlorothiazide 25 mg per day, pravastatin 40mg per day, and albuterol as needed. She takes no complementary or alternative medicines. She denies any allergies. She reports that she doesn’t drink alcohol or use any drugs. Her physical activity consists of daily walks to the park with her grandson. She reports an increase in tiredness over the past few weeks and some shortness of breath while playing with her grandson at the park.

You, the medical student and your attending enter the room to perform the physical exam together.

Key Exercise

Prior to proceeding on to the physical exam information, ask the students what information in this section is relevant? “What are you most worried about in Mrs. Montoya?”

Learner Prompts/Suggested Topics

- Shortness of breath on exertion
- Hypertension
- Hypercholesterolemia
- Medication review

- Assessment of level of stress and coping skills, tangible provider questions to ask, statements to make
- Understanding patients' health beliefs and the cultural issues that are weaved into these beliefs
- Review case presentation to the attending: what key element/s were missing
- Review patient perceptions of the role of the nurse and the authority of the role - are there cultural differences in the way an individual relates to and perceives the nurse?

Session One/Part Four

Physical Exam:

- General: Alert well-appearing Latina woman in no apparent distress
- Height: 160 cm/ 64 in; Weight 80 Kg
- BP: 144/90 mmHg
- HR: 90 bpm
- Temperature: 98.2 degrees Fahrenheit
- Respirations: 16 per minute
- Oxygen saturation (room air): 98%
- Head: Normocephalic, atraumatic
- Eyes: Normal fundoscopic exam
- Neck: No thyromegaly or lymphadenopathy. No carotid bruits or JVD
- Chest: Clear to auscultation
- Cor: Normal JVP. Non-displaced PMI. Regular rhythm. Normal S1, S2. No S3, S4. No murmur or rub.
- Breasts: Symmetric. Non-tender. No skin dimpling with arm movements. No mass. No axillary adenopathy.
- Abdomen: Normoactive bowels sounds. Non-tender. No hepatosplenomegaly. No mass. Pfannenstiel skin scar. Waist 41 inches.
- Extremities: No cyanosis, clubbing or edema. Normal pulses.
- Neuro: Non-focal. Normal cranial nerve exam. Normal sensory exam. Normal DTRs.
- Pelvic: Normal external genitalia. Absent cervix and uterus. No pelvic tenderness or mass.
- Musculoskeletal: Normal range of motion

Psychosocial Exam:

- Primary written and spoken language: Spanish
- Education level: Completed the 10th grade
- Support system: Two daughters, both married, live close to the patient and see her often, close to three sisters and several good female friends, husband
- Family structure: Extended family important in support and decision making
- Health insurance/Prescription plan: Health Maintenance Organization (HMO) plan through husband's work, prescriptions covered but with \$15 monthly co-payment for generic drugs and \$25 monthly co-payment for "brand name" drugs
- Profession/work status: Not working outside the home
- Leisure time activities: Attends church two to three times weekly
- Perceived level of health, illness, stress: Rates health as "fair" because of fatigue, asthma, overweight, does not perceive herself as "ill", notes moderate stress because of illness of friend and childcare responsibilities
- Level of stress assessment: Moderate

Session One /Part Five

While you, the medical student, and your attending are waiting for the patient to get dressed, you discuss the case. Your attending asks you what screening or diagnostic tests are indicated in Mrs. Montoya. She also asks what patient education information you think Mrs. Montoya might find useful.

You all return to the room to discuss the plan of care with the patient. After discussing Mrs. Montoya's concerns about breast cancer, the attending asks you to review with Mrs. Montoya the testing she has ordered and to schedule a follow-up visit for her in a couple of weeks. After completing this, you ask Mrs. Montoya if she has a few minutes while she is here to discuss how lifestyle choices and weight status influence her blood pressure measurements as well as other health outcomes.

"OK, I have some time since my daughter did take off work today".

Upon leaving the clinic, Mrs. Montoya tells you that she will keep a dietary log as you have recommended and will bring it with her on her return appointment.

"Hopefully I will have lost 5 lbs. too. I'm not sure that I can afford to buy a blood pressure machine for home, is it absolutely necessary?"

Key Exercise Prior to proceeding on to Session Two

Have the students consider what diagnostic tests to order for Mrs. Montoya at this point in her care/evaluation. Have the students indicate the rationale for all tests ordered.

Learner Prompts/Suggested Topics

- Diagnostic testing
- Education
 - Assessment of needs
 - Teaching techniques
 - State of learner readiness - change theory
 - Impact of respect, perceived power (by patient) of health care provider as disseminator of health recommendations, information, cultural differences in perception of hierarchical power in healthcare
 - Impact of lifestyle changes specific to weight management, hypertension
 - DASH eating plan
 - Cultural diet differences, resources for diet recommendations (for example, the Food Pyramid for different ethnicities)
 - Home blood pressure monitoring - functional use of home monitoring

Session Two/Part Six

You are in the outpatient clinic when Mrs. Montoya returns for her follow-up visit. You go in to see how she has been.

“Well, my friend talked to her doctor. It looks like they got all the cancer. I had my mammogram like the doctor asked.”

When you ask about her fatigue she shrugs and says,

“It's the same as before.”

You assure Mrs. Montoya that both her mammogram and clinical breast exam were normal. She sighs with relief.

“Then every thing is fine.”

You tell Mrs. Montoya that the doctor has some other concerns and will be in to review her lab results with her. You also ask if she brought her dietary log with her today.

“I did. I didn't realize how much I snack with my grandson throughout the day.”

Before leaving the room you take Mrs. Montoya's blood pressure and get a reading of 138/90. She tells you she has not purchased a blood pressure monitor for home use. While waiting for the physician you take this time to review her elevated blood pressure reading and discuss how food choices can impact blood pressure control.

Key Exercise

Ask the students what labs might the physician have ordered or what lab results are they most interested in? Is there anything else they would like to do or should review with Mrs. Montoya?

Learner Prompts/Suggested Topics

- Weight loss/management strategies
- Laboratory and diagnostic results review
 - Giving specific information of results (making a comparison of normal results to patient results, and how to convey the information in the context of guidelines)
 - NCEP cholesterol guidelines
 - Secondary causes of hypercholesteremia
 - Metabolic syndrome criteria
 - Diabetes criteria
 - Kidney function

Session Two /Part Seven (Give to student only when the specific tests are requested)




Lab Results		
Laboratory results		<u>Normal range</u>
(fasting):		
WBC	8.3	3.4 - 10
Hemoglobin	13	12 - 15.5
Hematocrit	38.3	36 - 46
Platelets	228	140 - 450
Iron	Not ordered	
Ferritin	Not ordered	
Electrolytes	Normal	
BUN	Not ordered	
Creatinine	1.0	0.6 - 1.2
Glucose	120	70 - 109
Hemoglobin A1C	7.4	4.8 - 6.7
Liver Function tests	Normal	
Cholesterol	224	< 200
Triglycerides	239	< 150
HDL	58	> 39
LDL	135	< 130
TSH	0.98	0.5 - 4.70
Free T4	Not ordered	
T3	Not ordered	
FSH	Not ordered	
LH	Not ordered	

Tutors: Provide following test results ONLY if students give rationale to the group for tests requested:

ECG	Normal (hand out attached ECG)
Pap test	Not ordered because s/p total hysterectomy
Pulmonary function tests	Not ordered
Cardiac stress test	See dobutamine echocardiogram results
Depression screening	Performed, and does not meet criteria for depression

Tutors:

Students request:

- NO ECG, NO stress test  ENDING ONE
- ECG, NO cardiac stress test  ENDING ONE
- Stress test (must give rationale)  ENDING TWO

Session Two (Ending One)/Part Eight

You reassure Mrs. Montoya that the doctor believes her ECG is normal. However, she has suggested some changes to her medications. You explain that the attending would like to increase her pravastatin to 80 mg per day since her LDL cholesterol is still higher than they would like to see it. In addition, a fluticasone inhaler has been prescribed for her asthma. You tell her that the doctor would like for her to return in three months so that her blood pressure can be rechecked and her response to the change in cholesterol medications can be evaluated. You remind her that her blood pressure is still higher than normal and ask her if she is taking her daily blood pressure pills or if she using anything else to try and manage her blood pressure.

“Well, I started garlic about 4 weeks ago and I ran out of my one pill, I just didn't have time to go to the pharmacy.”

You review, discuss and plan healthier food choices with Mrs. Montoya based on the dietary log she brought with her. Mutually agreed upon goals and dietary changes are set. You tell Mrs. Montoya to go to the pharmacy to get her captopril prescription filled and to start taking the pill every day again. You tell her that on her return visit in three months, you will review her progress and success with the agreed upon dietary changes and goal weight loss. In addition, you tell Mrs. Montoya to call you with any questions or concerns and encourage her to focus on healthy living and choices.

Key Exercises

What are the nursing care opportunities in this session? What information would the nurse have given to Mrs. Montoya about her diet, medications or other topic? Are there areas in this session that might require knowledge about management/treatment guidelines?

Learner Prompts/Suggested Topics

- Behavior change theory
- Possible reasons for failed blood pressure treatment
 - Medication related
 - Behavior related
 - Culturally related
- Ways to communicate the importance of taking medications as prescribed
- Other educational opportunities
 - Signs and symptoms of myocardial infarction
 - Exercise prescription
 - Treatment management goals
 - LDL cholesterol goal
 - BP goal
 - Weight goal
 - Exercise goal
 - Servings of fish, fruit, vegetables, whole grain goals

Session Two (Ending One)/Part Nine

Two months later, you are in the Emergency Department (ED) doing your clinical rotation and Mrs. Montoya is brought in by ambulance after suffering a myocardial infarction. Her husband and daughter accompany her to the hospital, while the rest of the family waits at home for news. Although Mrs. Montoya receives cardiac resuscitation, she is pronounced dead soon after arriving at the ED.

You accompany the ED physician when she goes to speak to the family; they are clearly agitated and worried when they see the two of you approaching. The physician takes the family aside and explains that Mrs. Montoya has had a heart attack and although everything was done to save her life, they were not able to save her. Her daughter breaks into tears and hugs her father, who also begins to cry.

“Her chest didn’t hurt today, she just said she felt funny and laid down on the couch and I couldn’t get her up,” cried her daughter. “She felt ok, just tired. She was watching my son today, maybe she chased after him too much. I shouldn’t have left him with her every day, it was too much for her!”

The attending reassures the family. “There was nothing you could have done; it wasn’t your fault that your mother had a heart attack. You couldn’t have seen this coming and gotten her to the ED any sooner to save her life.”

After you leave the family, you tell your attending that you saw Mrs. Montoya in clinic a few months ago and ask what you could have done differently. The attending explains that, like men, women with heart disease most commonly present with chest pain or discomfort. But, women are more likely than men to experience some of the other common symptoms, such as shortness of breath. Mrs. Montoya’s dyspnea and chest discomfort might have been a clue that she was suffering from heart disease.

A resting ECG can sometimes be normal even when severe cardiac disease is present, so a resting ECG cannot be used to exclude a possible diagnosis of cardiac disease. The next study for the patient would have been a type of stress test. Stress tests include exercise treadmill tests, exercise imaging tests and pharmacologic stress imaging tests. “If she could exercise, an exercise stress test would have been best, but because of her asthma, I think a pharmacologic stress test like a dobutamine echocardiogram would have been a good choice. The results of the test could have told you there was a blockage, and, if so, what further treatment might be needed.”

You ask about the patient and family’s description of her fatigue. Could that have been a clue for her risk for MI? The attending points out that some literature suggests that unusual fatigue may be a sign of impending infarction. She emphasizes that it is always important to take a further history and review of systems when patients present with fatigue.

You think back over Mrs. Montoya's case and realize that she had significant cardiac risk factors and you realize that from this experience and the grief you feel over her loss that you won't miss those signs again when you see a patient like Mrs. Montoya.

Session Two (Ending Two)/Part Eight

After reviewing her tests, the physician explains to Mrs. Montoya that given her risk factors for cardiac disease, fatigue, and exertional dyspnea and chest heaviness, she would like to do an ECG in the office today and call the hospital to schedule a stress test of her heart.

"I don't think anything is wrong with my heart, I don't have any pain in my chest," Mrs. Montoya replies.

The attending explains that, like men, women with heart disease most commonly present with chest pain or discomfort. But, women are more likely than men to experience some of the other common symptoms, such as shortness of breath. Feeling short of breath or a "different" sensation in the chest, neck, jaw, or abdomen, particularly with exertion or emotional stress, can be a sign of heart disease.

She goes on to tell her that the "stress" in stress test refers to exercise or medication that increases her heart rate. The test itself will be an ultrasound (echocardiogram) or nuclear medicine study to look at the heart. Because her asthma restricts her ability to exercise, the attending recommends a dobutamine stress test. The physician leaves the room to call the stress lab at the hospital; you sit down with Mrs. Montoya to help her understand her individual risk factors for cardiovascular disease and process with her the complaints of persistent fatigue and shortness of breath and how this is worrisome to the health care team.

Session Two (Ending Two)/Part Nine

Dobutamine Stress Tolerance Test:

Resting: Normal Sinus Rhythm

Dobutamine infusion:

Symptoms: None

Blood Pressure: Increased from 160/102 to 194/104

Heart Rate: Increased from 86 to 154 bpm

ECG findings: ST elevation in V4-V6, II, and AVF at peak heart rate.

Recovery: Resolution of ST changes

Conclusion: There was ECG evidence of stress-induced ischemia. This is a positive test.

Mrs. Montoya returns to the office with her husband, following the stress test. You and the physician sit down to explain the results to her. You inform her that because her stress test was quite abnormal, she needs to undergo cardiac catheterization. She and her husband appear concerned when you explain this procedure to her.

“Can my husband or my daughter be with me during the test?”

You explain that they can accompany her to the hospital but will have to wait in the waiting room during the procedure. The physician goes on to explain that the test is quite routine and generally quite safe, but very helpful in providing crucial data on her heart. Mr. Montoya quietly asks,

“Are there any risks from having the test? It sounds pretty dangerous to me.”

The physician explains the procedure and the risks and benefits. She explains that there is about a one in a thousand chance of major complications such as a stroke or heart attack as a result of the procedure. Mr. Montoya seems skeptical about the approving the procedure while the physician continues to explain the benefits of knowing if there is a blockage. “If there is a blockage and we don't detect it in time, your wife could have a heart attack. So the benefits of the procedure outweigh the risks of it. When you go for the procedure, the cardiologist will explain the risks and benefits in more detail.”

The following week, Mrs. Montoya undergoes cardiac catheterization that reveals a diffusely diseased left anterior descending artery, a right dominant system with severe stenotic lesions and a left ventricular ejection fraction of 55%.

Two weeks later, Mrs. Montoya undergoes a four-vessel coronary artery bypass graft surgery, while her entire family waits anxiously in the waiting room. Mrs. Montoya's daughter-in-law helps out by watching Robert at home. Mrs. Montoya experiences no complications. She spends the first day in the intensive care unit, and then transfers to

a surgical ward where her family visits her throughout her stay in the hospital. She is discharged in good condition on a low-saturated fat, low cholesterol diet with plan for cardiac rehabilitation after the post-op recovery period.

Six months later as you walk from the hospital to the outpatient clinic, you see Mrs. Montoya and ask her how she's doing.

"I feel great. Robert is as energetic as ever, but I don't feel as tired as I used to feel even after spending the day chasing after him and I'm not short of breath anymore. My daughter is working 80% now and stays home with Robert one day a week. They all worry about me too much. I'm fine. I just have to try to stay on my diet. That's the hardest thing."

You wish her good luck and go off to clinic.

Suggested Learning Issues

- List the major known CVD risks, identify gender and racial differences in the relative importance of the various risk factors and reference current national guidelines for risk factor management. Specifically:
 - Hypertension
 - Summarize current national guidelines on blood pressure monitoring, treatment and control
 - Describe the impact of hypertension on CVD risk
 - Hyperlipidemia
 - Summarize current national guidelines on lipid screening and describe the goals for optimal levels of all indices (TC, LDL, HDL, Triglycerides and TC/HDL ratio)
 - Describe the impact of hyperlipidemia on CVD risk and the impact of lipid lowering on CVD risk
 - Diabetes Mellitus (DM)
 - Describe the impact of DM on CVD risk and the impact of good control of glucose on CVD risk
 - Identify DM as a CVD "risk equivalent"
 - Discuss metabolic syndrome and current criteria for diagnosis
 - Smoking
 - Summarize smoking statistics and trends in the United States
 - Describe the impact of tobacco abuse on CVD risk

- Sedentary lifestyle
 - Summarize physical activity trends and statistics in the United States
 - Identify common barriers that interfere with a woman's daily physical activity
 - Identify gender differences in adult physical activity levels
- Obesity
 - Summarize obesity epidemiology and obesity trends in the United States
 - Summarize current national guidelines, including Surgeon General's recommendations on evaluation of weight status and management strategies/goals
 - Identify influences on a woman's weight history
 - Stress
 - Depression
- Depression
 - Summarize gender differences in trends/statistics for stress and depression
 - Describe the impact of depression on CVD risk
- Family history of MI/stroke
 - Describe the impact of +/- family history on CVD risk
 - Summarize current state of knowledge of genetics in relation to CVD
- Define risk stratification concepts and apply these to CVD risk
 - Identify the key components of the Framingham risk scale/score.
- Identify evidence-based patient educational resources for primary prevention of heart disease, treatment of heart disease and secondary prevention of heart disease.
- Summarize the current state of knowledge of menopause and hormone therapy and its affect on a woman's risk for developing CVD
- Discuss lifestyle interventions
 - Smoking Cessation
 - Summarize current knowledge of cessation options and key messages to be conveyed to women
 - Physical Activity
 - Summarize national physical activity guidelines that address maintaining health

- Diet (including Omega 3 fatty acids and folic acid)
 - Summarize the current state of knowledge of the food, mineral and vitamin components necessary for a heart healthy diet
 - Summarize current national guidelines for a heart healthy diet
 - Describe the Mediterranean diet and benefits of this diet
 - Summarize current fad diets and how these diets impact CVD
- Weight Management
 - Summarize current national guidelines, Surgeon General's recommendations on weight loss management strategies/goals
 - Identify barriers that interfere with a weight loss plan
 - Psychosocial
- Stress Management
 - Describe the options available for stress reduction techniques
 - Describe the latest treatments for anxiety and depression

**The Case of Mrs. Montoya:
Nursing Problem-based Learning Case
Student Materials**

Session One/ Part One

Today as part of your clinical rotation, you are in the outpatient clinic. Your nursing instructor asks you to be involved in the care of Ms. Amparo Montoya, a 58 year-old Latina woman who is a returning patient to clinic. You enter the room and ask what brings her to clinic today. She tells you that her close friend has been diagnosed with breast cancer and now she is worried too. "I can't feel a lump right now, but neither did she."

She thinks her last mammogram was two or three years ago.

"You see, I take care of my little grandson, Robert, because my daughter and her husband both work and if I have to come to the doctor, my daughter has to stay home to take care of him. I want to help her, not be a burden to her. Today she took off a couple of hours so I could come in."

"I'm so worried, my friend just had surgery and she's started chemo. I'm so worried about the care she is going to receive. She doesn't speak English. The chemo nurses can't find an interpreter. She's so tired. I get tired sometimes too. I think it's just because Robert is such a busy boy! He's two and he has lots of energy! But what if it's cancer? I take care of my family, I can't afford to be sick, too many people count on me."

You acknowledge her familial responsibilities; her concern for her friend as well as the concern for her own health and ask her "Can you tell me about your last mammogram visit? How was that experience? I'm curious as to why you've not been back."

"Not good" Mrs. Montoya replies. "I didn't want to go back there because of confusion with my insurance, it took so long and I had to get back to Robert and I heard on the news that annual mammograms might not be needed."

Session One/ Part Two

You assure Mrs. Montoya that you will discuss her breast health concerns with the physician, but that you would like to ask a few questions first. You tell her that you understand the word fatigue can mean many different things to many different people in different cultures and ask her “What does being fatigued mean to you?” She tells you that she has felt a bit more tired for the past few weeks. You ask her to explain her tiredness more.

“Besides chasing after Robert all day, maybe it’s because I don’t sleep very well. I wake up at four or five in the morning and can’t get back to sleep.” She notices mild shortness of breath when playing with him at the park, which she attributes to her asthma. She has a history of mild asthma since childhood and occasionally uses an albuterol inhaler. She has never taken steroids for her asthma. She reports that she never has shortness of breath while at rest and has never experienced any chest pain.

She reports that although she never seems to get enough sleep, she still has energy to cook for her family, do the shopping, and keep up the house.

You find that Ms. Montoya does not have breast pain; she has not noticed any discharge from her nipples, any dimpling, or any other changes to her breasts. She doesn’t usually do a monthly breast exam so she’s not sure if she’s had any breast lumps in the past or not.

“I don’t think anyone in my family has had breast cancer, not that I know of. My uncle had lung cancer, but he smoked a lot after he moved to this country. Otherwise, my family is pretty healthy now except both my parents have high blood pressure. My father had a heart attack about 15 years ago when he was 61. That’s when they moved in with my sister in El Salvador. I worry about them all the time, but I’m sure my sister is taking good care of them. He had to have surgery for his heart back then, but he’s doing ok now. My mom and brother have diabetes, but they’re mostly ok too, they try to eat better, but it’s hard. I try to cook the things the doctor said to make, but....” She shrugs. “My two younger sisters and my children are very healthy - no diabetes, no high blood pressure, no cancer. My husband takes medication every day for high blood pressure too and he takes an aspirin for his heart. I worry he’ll have a heart attack like my father; he works too hard.”

She has had no changes in her weight. She reports that her appetite is fair, but that she sometimes just doesn’t feel like eating. You ask about her mood and she states she worries a lot about her family. Her daughter and son-in-law live nearby and she takes care of her grandson full-time. You ask her if she has ever had any pressure or discomfort in her chest.

She replies, “Sometimes when I’m playing in the park with my grandson.”

She says that she does not have a cough, although her son-in-law smokes. Neither she nor her husband smoke and she only allows her son-in-law to smoke outdoors.

Session One/ Part Three

You mention to Mrs. Montoya that you noticed in her chart that she has a history of hypertension as well as elevated cholesterol.

“Yes, I’m just like the rest of my family. Sometimes I eat too well.”

You also find in her chart that Mrs. Montoya had a positive PPD test and normal chest x-ray when she immigrated to the United States from El Salvador over 30 years ago, but she says that she has never had tuberculosis. You continue your history and finally ask if she and her husband have sexual relations, she smiles, looks away and says,

“I’m too old for that.”

You ask Mrs. Montoya to change into a gown and tell her that the medical student will be in to examine her and to ask further questions. You go out to present to the clinic nurse and attending physician:

Mrs. Montoya presents today concerned about breast cancer. She missed her last mammogram and is concerned today because a friend was recently diagnosed with breast cancer. Her last mammogram was approximately three years ago. She reports no breast pain, nipple discharge, or dimpling. Her Ob/Gyn history is significant for two uncomplicated vaginal births. Her periods stopped when she had an abdominal hysterectomy for symptomatic fibroids at age 46. She took oral estrogen after her hysterectomy but states one of her doctors took her off it a couple of years ago. She has not had any other surgery. She has never had an abnormal pap smear. She has a past medical history of hypertension and high cholesterol. Her medications include captopril 25 mg three times daily, hydrochlorothiazide 25 mg per day, pravastatin 40mg per day, and albuterol as needed. She takes no complementary or alternative medicines. She denies any allergies. She reports that she doesn’t drink alcohol or use any drugs. Her physical activity consists of daily walks to the park with her grandson. She reports an increase in tiredness over the past few weeks and some shortness of breath while playing with her grandson at the park.

You, the medical student and your attending enter the room to perform the physical exam together.

Session One/Part Four

Physical Exam:

- General: Alert well-appearing Latina woman in no apparent distress
- Height: 160 cm/ 64 in; Weight 80 Kg
- BP: 144/90 mmHg
- HR: 90 bpm
- Temperature: 98.2 degrees Fahrenheit
- Respirations: 16 per minute
- Oxygen saturation (room air): 98%
- Head: Normocephalic, atraumatic
- Eyes: Normal fundoscopic exam
- Neck: No thyromegaly or lymphadenopathy. No carotid bruits or JVD
- Chest: Clear to auscultation
- Cor: Normal JVP. Non-displaced PMI. Regular rhythm. Normal S1, S2. No S3, S4. No murmur or rub.
- Breasts: Symmetric. Non-tender. No skin dimpling with arm movements. No mass. No axillary adenopathy.
- Abdomen: Normoactive bowels sounds. Non-tender. No hepatosplenomegaly. No mass. Pfannenstiel skin scar. Waist 41 inches.
- Extremities: No cyanosis, clubbing or edema. Normal pulses.
- Neuro: Non-focal. Normal cranial nerve exam. Normal sensory exam. Normal DTRs.
- Pelvic: Normal external genitalia. Absent cervix and uterus. No pelvic tenderness or mass.
- Musculoskeletal: Normal range of motion

Psychosocial Exam:

- Primary written and spoken language: Spanish
- Education level: Completed the 10th grade
- Support system: Two daughters, both married, live close to the patient and see her often, close to three sisters and several good female friends, husband
- Family structure: Extended family important in support and decision making
- Health insurance/Prescription plan: Health Maintenance Organization (HMO) plan through husband's work, prescriptions covered but with \$15 monthly co-payment for generic drugs and \$25 monthly co-payment for "brand name" drugs
- Profession/work status: Not working outside the home
- Leisure time activities: Attends church two to three times weekly
- Perceived level of health, illness, stress: Rates health as "fair" because of fatigue, asthma, overweight, does not perceive herself as "ill", notes moderate stress because of illness of friend and childcare responsibilities
- Level of stress assessment: Moderate

Session One /Part Five

While you, the medical student, and your attending are waiting for the patient to get dressed, you discuss the case. Your attending asks you what screening or diagnostic tests are indicated in Mrs. Montoya. She also asks what patient education information you think Mrs. Montoya might find useful.

You all return to the room to discuss the plan of care with the patient. After discussing Mrs. Montoya's concerns about breast cancer, the attending asks you to review with Mrs. Montoya the testing she has ordered and to schedule a follow-up visit for her in a couple of weeks. After completing this, you ask Mrs. Montoya if she has a few minutes while she is here to discuss how lifestyle choices and weight status influence her blood pressure measurements as well as other health outcomes.

"OK, I have a some time since my daughter did take off work today".

Upon leaving the clinic, Mrs. Montoya tells you that she will keep a dietary log as you have recommended and will bring it with her on her return appointment.

"Hopefully I will have lost 5 lbs. too. I'm not sure that I can afford to buy a blood pressure machine for home, is it absolutely necessary?"

Session Two/Part Six

You are in the outpatient clinic when Mrs. Montoya returns for her follow-up visit. You go in to see how she has been.

“Well, my friend talked to her doctor. It looks like they got all the cancer. I had my mammogram like the doctor asked.”

When you ask about her fatigue she shrugs and says,

“It’s the same as before.”

You assure Mrs. Montoya that both her mammogram and clinical breast exam were normal. She sighs with relief.

“Then every thing is fine.”

You tell Mrs. Montoya that the doctor has some other concerns and will be in to review her lab results with her. You also ask if she brought her dietary log with her today.

“I did. I didn’t realize how much I snack with my grandson throughout the day.”

Before leaving the room you take Mrs. Montoya’s blood pressure and get a reading of 138/90. She tells you she has not purchased a blood pressure monitor for home use. While waiting for the physician you take this time to review her elevated blood pressure reading and discuss how food choices can impact blood pressure control.

Session Two (Ending One)/Part Eight

You reassure Mrs. Montoya that the doctor believes her ECG is normal. However, she has suggested some changes to her medications. You explain that the attending would like to increase her pravastatin to 80 mg per day since her LDL cholesterol is still higher than they would like to see it. In addition, a fluticasone inhaler has been prescribed for her asthma. You tell her that the doctor would like for her to return in three months so that her blood pressure can be rechecked and her response to the change in cholesterol medications can be evaluated. You remind her that her blood pressure is still higher than normal and ask her if she is taking her daily blood pressure pills or if she using anything else to try and manage her blood pressure.

“Well, I started garlic about 4 weeks ago and I ran out of my one pill, I just didn’t have time to go to the pharmacy.”

You review, discuss and plan healthier food choices with Mrs. Montoya based on the dietary log she brought with her. Mutually agreed upon goals and dietary changes are set. You tell Mrs. Montoya to go to the pharmacy to get her captopril prescription filled and to start taking the pill every day again. You tell her that on her return visit in three months, you will review her progress and success with the agreed upon dietary changes and goal weight loss. In addition, you tell Mrs. Montoya to call you with any questions or concerns and encourage her to focus on healthy living and choices.

Session Two (Ending One)/Part Nine

Two months later, you are in the Emergency Department (ED) doing your clinical rotation and Mrs. Montoya is brought in by ambulance after suffering a myocardial infarction. Her husband and daughter accompany her to the hospital, while the rest of the family waits at home for news. Although Mrs. Montoya receives cardiac resuscitation, she is pronounced dead soon after arriving at the ED.

You accompany the ED physician when she goes to speak to the family; they are clearly agitated and worried when they see the two of you approaching. The physician takes the family aside and explains that Mrs. Montoya has had a heart attack and although everything was done to save her life, they were not able to save her. Her daughter breaks into tears and hugs her father, who also begins to cry.

“Her chest didn’t hurt today, she just said she felt funny and laid down on the couch and I couldn’t get her up,” cried her daughter. “She felt ok, just tired. She was watching my son today, maybe she chased after him too much. I shouldn’t have left him with her every day, it was too much for her!”

The attending reassures the family. “There was nothing you could have done; it wasn’t your fault that your mother had a heart attack. You couldn’t have seen this coming and gotten her to the ED any sooner to save her life.”

After you leave the family, you tell your attending that you saw Mrs. Montoya in clinic a few months ago and ask what you could have done differently. The attending explains that, like men, women with heart disease most commonly present with chest pain or discomfort. But, women are more likely than men to experience some of the other common symptoms, such as shortness of breath. Mrs. Montoya’s dyspnea and chest discomfort might have been a clue that she was suffering from heart disease.

A resting ECG can sometimes be normal even when severe cardiac disease is present, so a resting ECG cannot be used to exclude a possible diagnosis of cardiac disease. The next study for the patient would have been a type of stress test. Stress tests include exercise treadmill tests, exercise imaging tests and pharmacologic stress imaging tests. “If she could exercise, an exercise stress test would have been best, but because of her asthma, I think a pharmacologic stress test like a dobutamine echocardiogram would have been a good choice. The results of the test could have told you there was a blockage, and, if so, what further treatment might be needed.”

You ask about the patient and family’s description of her fatigue. Could that have been a clue for her risk for MI? The attending points out that some literature suggests that unusual fatigue may be a sign of impending infarction. She emphasizes that it is always important to take a further history and review of systems when patients present with fatigue.

You think back over Mrs. Montoya's case and realize that she had significant cardiac risk factors and you realize that from this experience and the grief you feel over her loss that you won't miss those signs again when you see a patient like Mrs. Montoya.

Session Two (Ending Two)/Part Eight

After reviewing her tests, the physician explains to Mrs. Montoya that given her risk factors for cardiac disease, fatigue, and exertional dyspnea and chest heaviness, she would like to do an ECG in the office today and call the hospital to schedule a stress test of her heart.

“I don’t think anything is wrong with my heart, I don’t have any pain in my chest,” Mrs. Montoya replies.

The attending explains that, like men, women with heart disease most commonly present with chest pain or discomfort. But, women are more likely than men to experience some of the other common symptoms, such as shortness of breath. Feeling short of breath or a “different” sensation in the chest, neck, jaw, or abdomen, particularly with exertion or emotional stress, can be a sign of heart disease.

She goes on to tell her that the “stress” in stress test refers to exercise or medication that increases her heart rate. The test itself will be an ultrasound (echocardiogram) or nuclear medicine study to look at the heart. Because her asthma restricts her ability to exercise, the attending recommends a dobutamine stress test. The physician leaves the room to call the stress lab at the hospital; you sit down with Mrs. Montoya to help her understand her individual risk factors for cardiovascular disease and process with her the complaints of persistent fatigue and shortness of breath and how this is worrisome to the health care team.

Session Two (Ending Two)/Part Nine

Dobutamine Stress Tolerance Test:

Resting: Normal Sinus Rhythm

Dobutamine infusion:

Symptoms: None

Blood Pressure: Increased from 160/102 to 194/104

Heart Rate: Increased from 86 to 154 bpm

ECG findings: ST elevation in V4-V6, II, and AVF at peak heart rate.

Recovery: Resolution of ST changes

Conclusion: There was ECG evidence of stress-induced ischemia. This is a positive test.

Mrs. Montoya returns to the office with her husband, following the stress test. You and the physician sit down to explain the results to her. You inform her that because her stress test was quite abnormal, she needs to undergo cardiac catheterization. She and her husband appear concerned when you explain this procedure to her.

“Can my husband or my daughter be with me during the test?”

You explain that they can accompany her to the hospital but will have to wait in the waiting room during the procedure. The physician goes on to explain that the test is quite routine and generally quite safe, but very helpful in providing crucial data on her heart. Mr. Montoya quietly asks,

“Are there any risks from having the test? It sounds pretty dangerous to me.”

The physician explains the procedure and the risks and benefits. She explains that there is about a one in a thousand chance of major complications such as a stroke or heart attack as a result of the procedure. Mr. Montoya seems skeptical about the approving the procedure while the physician continues to explain the benefits of knowing if there is a blockage. “If there is a blockage and we don’t detect it in time, your wife could have a heart attack. So the benefits of the procedure outweigh the risks of it. When you go for the procedure, the cardiologist will explain the risks and benefits in more detail.”

The following week, Mrs. Montoya undergoes cardiac catheterization that reveals a diffusely diseased left anterior descending artery, a right dominant system with severe stenotic lesions and a left ventricular ejection fraction of 55%.

Two weeks later, Mrs. Montoya undergoes a four-vessel coronary artery bypass graft surgery, while her entire family waits anxiously in the waiting room. Mrs. Montoya’s daughter-in-law helps out by watching Robert at home. Mrs. Montoya experiences no complications. She spends the first day in the intensive care unit, and then transfers to

a surgical ward where her family visits her throughout her stay in the hospital. She is discharged in good condition on a low-saturated fat, low cholesterol diet with plan for cardiac rehabilitation after the post-op recovery period.

Six months later as you walk from the hospital to the outpatient clinic, you see Mrs. Montoya and ask her how she's doing.

"I feel great. Robert is as energetic as ever, but I don't feel as tired as I used to feel even after spending the day chasing after him and I'm not short of breath anymore. My daughter is working 80% now and stays home with Robert one day a week. They all worry about me too much. I'm fine. I just have to try to stay on my diet. That's the hardest thing."

You wish her good luck and go off to clinic.

EXAMINATION QUESTIONS (Multiple Choice)
Risk Factor Identification/Management

Early Learner

1. All of the following are known major risk factors for CVD except for:
 - a. Small vessel cerebrovascular disease
 - b. Diabetes
 - c. Smoking
 - d. Obesity
 - e. Hypertension

2. Which risk factor elevates a woman's risk for heart disease by approximately 6-fold?
 - a. BMI > 25
 - b. Sedentary lifestyle
 - c. Hyperlipidemia
 - d. Smoking
 - e. Age > 55

3. Which woman has the greatest risk for heart disease based on ethnicity alone?
 - a. Native Pacific Islander
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 - c. African American
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4. Current comprehensive guidelines for management of hypertension can be found in the following report:
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 - b. ATP III
 - c. Merck Manual
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5. All of the following are major lifestyle modifications shown to lower blood pressure EXCEPT for:
 - a. Quitting smoking
 - b. Eliminating caffeine
 - c. Quitting work
 - d. Taking yoga classes
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6. The DASH eating plan is rich in the following:
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 - b. Calcium
 - c. Protein & fiber
 - d. Only A & B
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7. Which clinical disease/condition, according to ATP III, confers “high risk” for coronary heart disease (CHD Risk Equivalent)?
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 - c. Abdominal aortic aneurysm
 - d. Hyperlipidemia
 - e. Depression

8. Which clinical disease/condition, according to ATP III, confers “high risk” for coronary heart disease (CHD Risk Equivalent)?
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 - d. Elevated hs-CRP
 - e. Morbid obesity

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 - a. A fibrate drug to raise her HDL cholesterol
 - b. Avoidance of high carbohydrate diets to lower her triglycerides
 - c. Increased alcohol intake to raise her HDL cholesterol
 - d. All of the above
 - e. None of the above

10. If a patient taking a statin medication were to reduce her LDL cholesterol by 20%, her overall risk of a cardiac event would decrease by:
 - a. 10%
 - b. 15%
 - c. 20%
 - d. 25%
 - e. 30%

11. The primary target for cholesterol-lowering therapy is:
 - a. HDL
 - b. Triglycerides
 - c. LDL
 - d. Total cholesterol
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12. The presence of diabetes:
- Should modify treatment goals for LDL cholesterol
 - Should be treated as a separate category of higher risk
 - Elevates risk for CVD substantially
 - None of the above
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- True
 - False
14. In general, it is easier for a woman to stop smoking than a man.
- True
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15. Women who are successful at quitting smoking usually have one or more quit attempts before “kicking the habit.”
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 - Drink more socially
 - Lose weight
 - Gain weight
 - Lose friends
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- Advise, Attitude, Attention, Adaptability, Arrange
 - Ask, Advise, Assess, Assist, Arrange
 - Adversity, Adaptability, Attitude, Ask, Assist
 - Ask, Allocate, Assess, Assist, Arrange
 - Ask, Advise, Assess, Assist, Adhere
18. Based on Mrs. Montoya’s weight and height, her BMI score falls into the following category:
- Normal weight
 - Mildly overweight
 - Moderately overweight
 - Severely overweight
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19. What advice would you give to Mrs. Montoya about her weight status?
- Gain 5 pounds
 - Maintain current weight
 - Lose 5 pounds
 - Lose 10% of current weight
 - None of the above
20. Of the following, what would you recommend in order for Mrs. Montoya to start losing weight?
- Lower the number of calories in her diet by reducing fat
 - Moderate levels of physical activity for 30 - 45 minutes, 3-5 days per week
 - Lower the number of calories in her diet by reducing saturated fat and carbohydrates
 - A & B
 - B & C
21. What might you also recommend to Mrs. Montoya for her weight loss plan?
- Record the amount and type of food eaten daily (keep a log)
 - Keep a record of the frequency of exercise
 - Purchase a pedometer and wear it daily. Record the number of daily steps
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22. The prevalence of obesity is greatest in what group (according to NHANES III)?
- Non-Hispanic Black women
 - Mexican-American women
 - White, non-Hispanic women
 - Non-Hispanic Black men
 - Mexican-American men
23. Obese individuals are more likely than lean individuals to have which of the following?
- Low LDL cholesterol
 - Low HDL cholesterol
 - High triglycerides
 - Type 1 diabetes mellitus
 - B & C

24. An appropriate comprehensive resource to reference for clinical information and guidelines on obesity is:
- ATP III
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25. In taking the family history on Mrs. Montoya, she tells you that “yes” her mother has heart disease, she had surgery on “one of her heart valves”. How does her mother’s valvular heart disease impact Mrs. Montoya’s own risk for CAD?
- Increases risk by 1% per year
 - Increases risk by 3% per year
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26. In the United States, nearly twice as many women (12.0 percent) as men (6.6 percent) are affected by a depressive disorder each year.
- True
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27. The Framingham risk score estimates the risk of developing CHD within a:
- 5-year time period
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28. The Framingham Risk score is calculated based on the following:
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29. Based on Mrs. Montoya’s medical history and risk factor profile, her Framingham risk score is:
- >10%
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 - 1%

Examination Questions (Multiple Choice)
CVD Presentation/Medical Work-up/Differential Diagnosis/Treatment

Advanced Learner

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 - a. Hypothyroidism
 - b. Anemia
 - c. Deconditioning
 - d. Heart disease
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2. A differential diagnosis of shortness of breath in a postmenopausal woman can include:
 - a. Congestive heart failure
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3. Estrogen therapy without progesterone is an appropriate treatment option to relieve menopausal symptoms in an otherwise healthy woman who has had a hysterectomy.
 - a. True
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4. Menopausal hormone therapy with estrogen and progesterone may increase the risk of which of the following?
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5. Mrs. Montoya is taking captopril 25 mg t.i.d. and HCTZ 25 mg daily for blood pressure management. On exam, her blood pressure reads 144/90. What is your evaluation and recommendation for therapy?
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 - b. Instruct Mrs. Montoya to lose weight, continue the same medications, and follow-up in 3 months
 - c. Titrate medications for further blood pressure reduction, follow-up in 1 month
 - d. Consider switching medications all together, today on this visit
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6. All of the following are all secondary causes of hypercholesteremia EXCEPT:
 - a. Pregnancy
 - b. Hypothyroidism
 - c. Nephrotic syndrome
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 - e. Gout

7. Which of the following is NOT a factor used for the diagnosis of metabolic syndrome?
 - a. Waist circumference
 - b. Triglycerides level
 - c. Fasting glucose
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8. According to ATP III, pharmacotherapy for women with metabolic syndrome should include anti-hypertensive medications to lower blood pressure and treatment of the prothrombotic state with aspirin.
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Smoking Cessation

Treating Tobacco Use and Dependence—Clinician’s Packet. A How-To Guide For Implementing the Public Health Service Clinical Practice Guideline, March 2003. U.S. Public Health Service. Agency for Healthcare Research and Quality. Rockville, MD.

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Prevention of Cardiovascular Disease in Women

Evidence-based Guidelines for Cardiovascular Disease Prevention in Women

<http://circ.ahajournals.org/cgi/content/full/109/5/672>

Problem-based Learning

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Tools for Personal Digital Assistants (PDAs)

Body Mass Index Calculator for Palm OS and Pocket PC 2003:
http://hin.nhlbi.nih.gov/bmi_palm.htm

ATPIII Cholesterol Management Implementation Tool for Palm OS:
<http://hin.nhlbi.nih.gov/atpiii/atp3palm.htm>

JNC 7 Application for Palm OS and Pocket PC 2003:
<http://hin.nhlbi.nih.gov/jnc7/jnc7pda.htm>

10-year CHD Risk Assessment Tool:
<http://hin.nhlgi.nih.gov/atpiii/riskcalc.htm>

“Act in Time to Heart Attack Signs” Physician Quick Reference for Palm OS:
<http://hin.nhlbi.nih.gov/haacpalm/haacpalm.htm>

Stress

Cohen, S, Kamarck, T., Mermelstein, R, et al. Perceived Stress Scale (PSS). Journal of Health and Social Behavior 1983; 24:386-396. PSS scale available in English and multiple other languages at:
<http://www.psy.cmu.edu/%7Escohen/>

Symptoms of Acute Coronary Syndromes

Patel H, Rosengren A, Ekman I. Symptoms in acute coronary syndromes: does sex make a difference? Am Heart J 2004; 148:27-33.

Risk Assessment

10-year CHD Risk Assessment Tool:
<http://hin.nhlgi.nih.gov/atpiii/riskcalc.htm>

The Heart Truth Professional Education
Campaign Website:

<http://womenshealth.gov/hearttruth>

Available in 2006