American Board of Family Medicine

Knowledge Self-Assessment Questions: Health Behavior

Note: The order in which these questions are listed is the order in which they will be presented the first time through the Knowledge Self-Assessment. On subsequent visits to the assessment, the questions will be presented in groups organized by competency (content area).

1. True statements regarding smoking and cancer include which of the following?

(Mark all that are true.)

- Smoking causes cancer in only three organ systems
- **Smoking is causally linked to adult myeloid leukemia**
- Lung cancer causes fewer deaths in women than breast cancer
- Smoking causes prostate cancer

Critique:

The 2004 U.S. Surgeon General's Report expanded the list of smoking-related cancers, noting that the evidence either suggested or was strong enough to infer causal relationships between smoking and cancers of the lung, larynx, oral cavity, pharynx, esophagus, stomach, liver, pancreas, colon and rectum, uterine cervix, kidney, and bladder, as well as other sites. Smoking was also causally linked to adult myeloid leukemia. In 2014 the Surgeon General released a report marking 50 years since the first Surgeon General's report on smoking. This report also examined links between smoking and cancer, and discussed causal links to lung cancer, liver cancer, and colorectal cancer, as well as evidence suggesting a link between breast cancer and smoking. The 2014 report also notes that smoking does not cause prostate cancer. The evidence did show, however, that smoking increases the risk of dying in patients with cancer, including those with breast or prostate cancer.

Lung cancer surpassed breast cancer as the major cause of cancer-related death among women in the United States in 1986. While there are more cases of breast cancer each year, survival rates for lung cancer are still dismal (5-year survival <15%) and have not significantly improved since the 1960s. By the time lung cancer is diagnosed, 75% of patients have metastatic disease.

The risk of cancer from smoking shows a clear relationship to both the number of cigarettes smoked each day and the duration of smoking; the earlier one begins to smoke, the higher the risk. Even though the amount of "tar" in cigarettes has declined over the years, the risk of lung and other cancers has not declined. There are more than 60 carcinogens among the 4000 chemicals in cigarette smoke, and these toxins directly damage cellular DNA and cause mutations, disrupt cellular repair mechanisms, and inhibit apoptosis, the body's ability to destroy tumor growth.

While the risk of lung cancer decreases within about 5 years among persons who stop smoking, the residual risk may persist for several decades. Stopping smoking before middle age greatly decreases the risk of lung cancer, and cessation sharply reduces the risk of laryngeal cancer within 10 years. The risk of

bladder cancer, on the other hand, persists much longer after cessation (level of evidence 2 for all findings).

References:

The Health Consequences of Smoking: A Report of the Surgeon General. US Dept of Health and Human Services, Office on Smoking and Health, 2004.

US Dept of Health and Human Services: The Health Consequences of Smoking —50 Years of Progress: A Report of the Surgeon General: Executive Summary. National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.

(Last Modified: March 2015)

(Last Reviewed: March 2015)

2. A 40-year-old female sees you for a routine evaluation. She reports difficulty becoming sexually aroused with her spouse of 10 years, and says she often cannot achieve orgasm. She takes sertraline (Zoloft) for anxiety, but is otherwise healthy. Her physical examination is normal.

Recommended general measures to help with her sexual dysfunction include which of the following? (Mark all that are true.)

- ○ Increasing the dosage of sertraline
- ○ **Sensate-focus exercises**
- ○ **The use of fantasy to provide distraction**
- ○ **Kegel exercises (pelvic muscle contraction and relaxation) during intercourse**

Critique:

There are four different areas of sexual dysfunction that need to be addressed in any woman who is having sexual difficulties: desire, arousal, orgasmic problems, and pain (dyspareunia and vaginismus). According to a study published in *JAMA* in 1999, sexual dysfunction is more common in women (43%) than in men (31%) (level of evidence 3). In addition, both men and women with poor emotional or physical health are more likely to suffer from sexual dysfunction.

The most common sexual problem in women is lack of desire, with 10%–51% reporting this. Having low levels of desire is often associated with decreased arousal and difficulty achieving orgasm.

Important components in making the diagnosis of female sexual dysfunction include a detailed history that defines the areas of dysfunction and possible underlying physical, emotional, and psychosocial contributors, and a careful physical examination, with particular attention to gynecologic conditions. If a detailed history and physical examination do not reveal an etiology, there are general measures that the primary care physician can employ.

Medications that can affect desire include psychoactive medications, cardiovascular drugs (including antihypertensives), and hormonal preparations. Arousal problems can be caused by psychoactive medications, anticholinergics, antihistamines, and antihypertensives. Orgasmic dysfunction can be caused by methyldopa, amphetamines, psychoactive medications, and narcotics.

SSRIs can cause or contribute to disorders of desire, arousal, and orgasm. Consideration should be given to tapering the SSRI and assessing the effect on the patient's sexual dysfunction, as well as on comorbid anxiety. Increasing the dosage of this patient's SSRI may worsen her sexual disorders.

The physician should suggest methods of enhancing stimulation and eliminating the "routine" aspects of the patient's sexual life. Possible techniques include using erotic materials, masturbation, increased communication during sexual activity, using stimulators such as vibrators, and varying the time of day, place, and position of sexual activity (SOR C).

Another recommended general intervention is to encourage the patient and her partner to engage in noncoital behaviors. Sensate-focus exercises involve sensual massage without involving the sexual areas. While one partner massages, the other gives feedback as to the pleasurability of the touch. This can help to promote both comfort

and communication between the partners.

Techniques that provide distraction can help minimize inhibition in women with sexual dysfunction. Examples of distraction methods include the use of exercises such as Kegel exercises during intercourse, engaging in erotic or nonerotic fantasy, and listening to music or television.

The family physician should offer referral to a specialist for women who do not respond to general measures.

References:

Laumann EO, Paik A, Rosen RC: Sexual dysfunction in the United States: Prevalence and predictors. JAMA 1999;281(6):537-544.

Phillips NA: Female sexual dysfunction: Evaluation and treatment. Am Fam Physician 2000;62(1):127-136, 141-142.

Basson R: Women's sexual desire and arousal disorders. Prim Psychiatry 2008;15(9):72-91.

(Last Modified: September 2011)

(Last Reviewed: September 2011)

3. A young couple comes to your office for an initial prenatal visit. At the end of the visit, the mother mentions that her two other children are substantially overweight, and asks what she can do to help prevent obesity in this child.

Which of the following recommendations are supported by good evidence? (Mark all that are true.)

- **No television before the age of 2 years**
- Introducing solid foods at 3 months of age to help the baby feel more full
- **Breastfeeding**
- **Changing to reduced-fat milk at 12 months of age**
- Offering juice before milk, starting at 6 months of age
- **Parental modeling of healthy lifestyles**

Critique:

Pediatric obesity has become epidemic. Measures to prevent this condition should be shared with parents as early as possible. For infants, major recommendations to reduce the risk of obesity include breastfeeding (SOR A), no television or computer screen time (SOR C), avoiding premature introduction of solid foods (SOR C), avoiding high-calorie beverages with low nutritional value (SOR C), and educating parents to be role models of healthy lifestyles (SOR C). Cow's milk and fruit juice can be introduced at 12 months of age. While there concerns in the past about low-fat diets and their effect on brain development, low-fat or fat-free milk is appropriate at this age, especially if there are concerns about obesity or a family history of cardiovascular disease (SOR A).

References:

Council on Sports Medicine and Fitness; Council on School Health: Active healthy living: Prevention of childhood obesity through increased physical activity. Pediatrics 2006;117(5):1834-1842.

Daniels SR, Hassink SG; Committee on Nutrition: The role of the pediatrician in primary prevention of obesity. Pediatrics 2015;136(1):e275-e292.

Heyman MB, Abrams SA; Section on Gastroenterology, Hepatology, and Nutrition; Committee on Nutrition: Fruit Juice in infants, children, and adolescents: Current recommendations. Pediatrics 2017;139(6):e20170967.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

4. In children, risk factors for being overweight include which of the following? (Mark all that are true.)

- **Birth weight categorized as low for gestational age**
- **High birth weight**
- High socioeconomic level
- BMI >25 kg/m2
- An increase in BMI of 2 kg/m in 1 year 2

Critique:

Numerous sources have suggested that prevention of obesity is the best way to combat this epidemic. Being obese in childhood increases the risk for obesity in adulthood. Thus, it is currently recommended that physicians screen children annually for risk factors for overweight. Low or high birth weight, low socioeconomic level, poor eating, a change >3–4 BMI units per year, depression, >2 hours/day of sedentary activity such as watching television or playing computer games, and minority status are all considered risk factors for overweight/obesity (SOR C). While an adult with a BMI >25 would be classified as overweight, BMI in children is evaluated according to percentile for age, with a percentile >85 considered overweight. The BMI value by itself is not meaningful when assessing children.

References:

Daniels SR, Hassink SG; Committee on Nutrition: The role of the pediatrician in primary prevention of obesity. Pediatrics 2015;136(1):e275-e292.

Michigan Quality Improvement Consortium: Prevention and identification of childhood overweight. 2016.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

5. A 72-year-old female sees you for a routine evaluation. She has well-controlled hypertension and is otherwise in good health. She comments that she recently slipped and fell on her hip and is now concerned that she may fall and actually break her hip. She asks if there is anything she can do to prevent further falls.

Which one of the following would be appropriate advice?

A) Karate has been proven to improve balance

B) Tai chi has been proven to decrease the risk of falls

C) Stretching programs have the highest success rate for decreasing injurious falls

D) Exercise could increase her blood pressure and thus increase her risk of stroke and subsequent falls

E) She should increase her calcium intake, but exercise is not necessary because she is not at high risk for further falls

Critique:

Statistics show that at least one-third of adults age 65 and older fall annually. Falls are the leading cause of nonfatal injuries and place the victims at increased risk for subsequent premature death. As the population ages, preventing this common cause of morbidity is of growing importance.

Studies have found numerous modifiable risk factors related to falls. Tai chi in particular appears to reduce the risks of falls (level of evidence 1). Neither karate nor stretching have been shown to help seniors prevent falls. Well-controlled hypertension does not preclude patients from initiating an exercise plan. While additional calcium intake may strengthen this patient's bones, appropriate balance and strength-training exercises will do much more to prevent the falls that often result in fractures.

References:

Falls among older adults: An overview. Centers for Disease Control and Prevention, 2007.

Li F, Harmer P, Fisher KJ, et al: Tai chi and fall reductions in older adults: A randomized controlled trial. J Gerontol A Biol Sci Med Sci 2005;60(2):187-194.

Verhagen AP, Immink M, van der Muelen A, et al: The efficacy of Tai Chi Chuan in older adults: A systematic review. Fam Pract 2004;21(1):107-113.

Panel on Prevention of Falls in Older Persons, American Geriatrics Society and British Geriatrics Society: Summary of the Updated American Geriatrics Society/British Geriatrics Society clinical practice guideline for prevention of falls in older persons. J Am Geriatr Soc 2011;59(1):148-157.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

6. Behavioral therapy interventions for weight loss are contraindicated in which of the following? (Mark all that are true.)

- ○ **Pregnant or lactating women**
- ○ Patients with a controlled psychiatric disorder
- ○ **Patients with active substance abuse**
- ○ Patients who plan to undergo bariatric surgery
- ○ **Patients with a history of anorexia nervosa or bulimia nervosa**

Critique:

Concerns for the developing fetus preclude an active behavioral intervention for weight loss until after the child is born (SOR B). In patients with psychiatric disorders, these interventions are contraindicated in pregnant women only in cases if the psychiatric disorder is not controlled, as unpredictable effects from the psychiatric illness can cause problems during the many physiologic changes that occur during weight loss interventions. Likewise, unpredictable effects from substance abuse can also negatively interact with the many physiologic changes that occur during weight loss interventions.

Attempts at behavioral interventions are required before bariatric surgery is considered (SOR A). Behavioral strategies do not work well in patients with eating disorders, given their unregulated and potentially overzealous attempts, such as purging, which can jeopardize their overall health (SOR B).

References:

NHLBI Obesity Education Initiative Expert Panel on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults; North American Association for the Study of Obesity Practical Guide Development Committee: Obesity: The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. National Heart, Lung, and Blood Institute, 2000, NIH pub no 00-4084.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

7. Complications of smoking during pregnancy include which of the following? (Mark all that are true.)

- **Low birth weight and premature delivery**
- Preeclampsia
- **Abruptio placentae**
- Congenital atrial septal defects
- **Ectopic pregnancy**
- **Spontaneous abortion**

Critique:

There are many reproductive problems related to smoking, including conception delay and both primary and secondary infertility; an increased risk of ectopic pregnancy and spontaneous abortion; an increased risk of abruption, preterm rupture of membranes, placenta previa, and premature delivery; and increased perinatal morbidity and mortality, including stillbirth, low birth weight, and SIDS-related deaths (level of evidence 2). The 2001 Surgeon General's Report on women and smoking makes it clear that stopping smoking during pregnancy reduces and sometimes eliminates many of these consequences. Smoking during pregnancy creates a decreased risk for preeclampsia, through mechanisms that are unclear. Smoking also does not appear to increase the risks of congenital malformations.

The reduced likelihood of conception in smokers includes conception from in vitro fertilization techniques, as well as decreased fertility. This may be because elements in smoke are anti-estrogenic (which also leads to early menopause), and also because the toxins in smoke may interfere with implantation, tubal transport, and the function of the corpus luteum.

Small for gestational age (SGA) infants are a dose-dependent outcome of maternal smoking, with an odds ratio (OR) of 2.11 when women smoke throughout pregnancy. Risks for prematurity (OR 1.15) and increased fetal death (OR 1.15) are also increased. The risk of having an SGA infant is avoided if smoking is reduced, but the risks for prematurity and increased fetal death are not.

In 2014 the U.S. Surgeon General issued a new report on the health consequences of smoking which noted that the evidence was strong enough to infer a causal link between maternal smoking and orofacial clefts. No link could be inferred, however, between smoking and other congenital defects, including clubfoot, gastroschisis, and atrial septal defects.

References:

Cnattingius S: The epidemiology of smoking during pregnancy: Smoking prevalence, maternal characteristics, and pregnancy outcomes. Nicotine Tob Res 2004;6(Suppl 2):S125-S140.

The 2001 Surgeon General's report—Women and smoking. US Dept of Health and Human Services, Office on Smoking and Health, 2001.

US Dept of Health and Human Services: The Health Consequences of Smoking —50 Years of Progress: A Report of the Surgeon General: Executive Summary. National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.

(Last Modified: December 2014)

(Last Reviewed: December 2014)

8. True statements about aerobic exercise in older patients include which of the following? (Mark all that are true.)

○ **Exercise is superior to social intervention in the treatment of depression**

○ **Patients with coronary heart disease should be instructed to perform regular light to moderate aerobic exercise**

○ The American Heart Association recommends a target heart rate range of 100–155 beats/min for a 70-year-old adult during exercise

○ Men are more likely than women to report engaging in no physical activity

Critique:

Group exercise was found to be superior to other group activities in treating older depressed patients already on similar pharmacotherapy (SOR B). In a study of older men with established coronary heart disease, light and moderate levels of physical activity (e.g., walking, gardening, and recreational activity) were associated with a significant reduction in all-cause and cardiovascular mortality rates. The benefit was seen in men both younger and older than 65. Even those with chest pain or severe breathlessness achieved significant benefits from these lighter activities (SOR A).

The American Heart Association's recommended target heart rate range for adequate aerobic exercise intensity is 50%–75% of a patient's maximum heart rate, or 75–113 beats/min for 70-year-old adults. The formula used to derive this range is 220 (maximum heart rate in young adults), minus patient age, times 0.55–0.75 (SOR C).

Data from the Centers for Disease Control and Prevention indicates that about 28%–34% of adults age 65–74 and 35%–44% of adults age 75 or older are inactive, meaning they engage in no leisure-time physical activity. Inactivity is more common in older people than in middle-aged men and women. Women are more likely than men to report no leisure-time activity (SOR C).

References:

Mather AS, Rodriguez C, Guthrie MF, et al: Effects of exercise on depressive symptoms in older adults with poorly responsive depressive disorder: Randomised controlled trial. Br J Psychiatry 2002;180:411-415.

Wannamethee SG, Shaper AG, Walker M: Physical activity and mortality in older men with diagnosed coronary heart disease. Circulation 2000;102(12):1358-1363.

Warburton DE, Nicol CW, Bredin SS: Health benefits of physical activity: The evidence. CMAJ 2006;174(6):801-809.

Elsawy B, Higgins KE: Physical activity guidelines for older adults. Am Fam Physician 2010;81(1):55-59.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

9. A 13-year-old male is brought to your office by his mother for a routine annual examination. When you question the patient about substance abuse, the mother explains that the child's father drinks heavily and smokes in their home but the son has never seemed interested. Just before you leave the examination room, the mother asks to speak with you in private. She explains that she found a dirty rag in her son's room and asks for information about inhalant abuse.

Which one of the following would be accurate advice?

A) Children who abuse inhalants are more likely to use other illicit drugs

B) A urine drug test can be used to detect inhalant abuse

C) It is usually obvious in the office setting whether a patient is abusing inhalants

D) The mean age of first-time inhalant use is 15 years of age

E) Rates of inhalant abuse are highest in African-Americans

Critique:

Inhalants are considered a gateway drug to other substances of abuse, but inhalant abuse is often overlooked even though it is a prevalent form of substance abuse in adolescents. The mean age of first-time use in the United States is between 10 and 13 years of age. Rates of abuse are reportedly highest in non-Hispanic whites and Hispanics. Inhalants are found in numerous common household products and are thus easier and cheaper to access for younger adolescents. If there are other abusers in the home, children and teens are at greater risk of abusing inhalants.

Unfortunately, it is very difficult to tell in the office setting whether a teen is using inhalants, and there are no easily available tests to detect abuse. Parents should be counseled to be alert to signs such as certain physical and emotional symptoms of abuse, missing cleaning agents, and dirty rags in children's rooms (SOR C).

References:

Anderson CE, Loomis GA: Recognition and prevention of inhalant abuse. Am Fam Physician 2003;68(5):869-874.

National Institute on Drug Abuse: Inhalant Abuse. National Institutes of Health, 2010, pub no 10-3818.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

10. True statements regarding the use of varenicline (Chantix) for smoking cessation include which of the following? (Mark all that are true.)

○ **It has both nicotine receptor–agonist and nicotine receptor–antagonist properties**

○ **It may increase the risk of certain cardiovascular adverse events in patients with cardiovascular disease**

○ It is known to be safe in pregnancy

○ It has been shown to be safe and effective in combination with nicotine replacement therapy

○ It is less effective than bupropion for smoking cessation

Critique:

A novel medication for smoking cessation is varenicline, which is both a partial $\alpha_4\beta_2$ nicotinic acetylcholine (ACh) receptor agonist and a nicotine receptor blocker. This leads to the release of small amounts of dopamine and other neurotransmitters released by nicotine, thus relieving cravings, while simultaneously blocking nicotine itself from nicotine receptors.

In two smoking cessation studies, patients receiving varenicline had significantly increased 4-week continuous abstinence rates compared with those receiving placebo or bupropion (level of evidence 2). Continuous abstinence rates up to a year post treatment were also increased. In a randomized, controlled trial comparing it to sustained-release bupropion, varenicline's short-term and long-term efficacy exceeded that of bupropion SR.

Like bupropion, varenicline is begun 1 week prior to the quit date, with the drug's dosage titrated upward during this time. The patient is started on 0.5 mg/day for the first 3 days, with the dosage increased to 0.5 mg twice daily for days 4–6. On day 7 the dosage is increased to 1 mg twice daily, which is the maintenance dosage. Patients are advised to stop smoking on day 7.

Side effects include nausea, which can be reduced by taking the drug at mealtimes, and vivid dreams, but no drug-drug interactions have been reported. Dosage reductions are required in patients with significant renal disease. Although a 12-week study found the combination of varenicline and nicotine replacement therapy to be more effective than varenicline alone, further studies are needed to assess its long-term efficacy and safety. It has also not been tested in pregnant patients, but is listed as Category C. The FDA issued a public health advisory about varenicline in 2008 because of post-marketing reports of suicidal ideation and behavior changes, followed by a drug safety communication in 2011 notifying the public that varenicline may be associated with a small increased risk of certain cardiovascular adverse events in patients who have cardiovascular disease.

References:

Jorenby DE, Hays JT, Rigotti N, et al: Efficacy of varenicline, an alpha4beta2 nicotinic acetylcholine receptor partial agonist, vs placebo or sustained-release bupropion for smoking cessation: A randomized controlled trial. JAMA 2006;296(1):56-63.

Nides M, Oncken C, Gonzales D, et al: Smoking cessation with varenicline, a selective alpha4beta2 nicotinic receptor partial agonist: Results from a 7-week, randomized, placebo- and bupropion-controlled trial with 1-year follow-up. Arch Intern Med 2006;166(15):1561-1568.

Koegelenberg CF, Noor F, Bateman ED, et al: Efficacy of varenicline combined with nicotine replacement therapy vs varenicline alone for smoking cessation: A randomized clinical trial. JAMA 2014;312(2):155-161.

FDA Drug Safety Communication: Safety review update of Chantix (varenicline) and risk of cardiovascular adverse events. US Food and Drug Administration, 2012.

Cahill K, Lindson-Hawley N, Thomas KH, et al: Nicotine receptor partial agonists for smoking cessation. Cochrane Database Syst Rev 2016;(5):CD006103.

(Last Modified: August 2014)

(Last Reviewed: August 2014)

11. True statements regarding the consumption of trans fatty acids include which of the following? (Mark all that are true.)

- In the United States the main sources are meats and dairy products
- **They result in a rise in LDL-cholesterol and a reduction in HDL-cholesterol**
- **They have been linked to vascular inflammation and elevation of C-reactive protein**
- Consumers can avoid them by consuming foods with zero trans fatty acids listed on the nutrition label
- Consumers should be advised to avoid foods containing hydrogenated oils

Critique:

On a per-calorie basis, the consumption of trans fatty acids (TFAs) is felt to increase the risk of coronary heart disease more than any other macronutrient. Furthermore, studies have linked their consumption to both sudden cardiac death and the development of diabetes mellitus (level of evidence 2). In the United States, the consumption of industrially produced TFAs (used in margarines, commercial cooking, and manufacturing processes) greatly exceeds the intake of naturally occurring TFAs found in meats and dairy products. As a result, the major dietary sources in the United States are deep-fried fast foods, bakery products, packaged snack foods, margarine, and crackers.

Physiologically, the consumption of TFAs has been shown to increase LDL-cholesterol, reduce HDL-cholesterol, increase serum triglycerides, and reduce the size of the LDL particle (level of evidence 3). In addition to endothelial dysfunction, systemic inflammation has also been linked to the consumption of TFAs, with increased activity of the tissue-necrosis factor system and increases in interleukin-6 and C-reactive protein.

Although selecting food products with "zero" TFAs is recommended, it is important to recognize that this does not eliminate their intake, since such labeling means only that the product contains less than 500 mg per serving; thus, consumption of multiple servings of such products can still result in a significant TFA intake. Inspecting the ingredient list for partially hydrogenated oils is the only way to identify these foods. It is important to note that TFAs are formed during partial hydrogenation of vegetable oils. Thus, fully hydrogenated oils, which are typically listed simply as "hydrogenated" on product labeling, do not contain TFAs.

References:

Mozaffarian D, Katan MB, Ascherio A, et al: Trans fatty acids and cardiovascular disease. N Engl J Med 2006;354(15):1601-1613.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

12. Which of the following should trigger concern about possible sexual abuse? (Mark all that are true.)

- A 5-year-old girl using the term "vagina" to describe her anatomy
- A 7-year-old boy masturbating in the bathtub
- A 4-year-old boy and a 3-year-old girl playing "doctor" and showing each other their genitalia
- **A 12-year-old boy touching the genitals of a 5-year-old neighbor**

Critique:

It is important to understand when sexual play, or age-appropriate sexual behavior, is a normal part of child and adolescent sexuality. These behaviors should be distinguished from sexual abuse. In age-appropriate sexual exploration, the developmental level of the participants is similar and activities occur without coercion. Sexual abuse is sexual activity that a child cannot understand or give consent to, or that violates legal statutes. The American Academy of Pediatrics (AAP) encourages parents to discuss sexual issues with their children that are appropriate to the child or adolescent's age level (SOR C).

The AAP recommends that parents use proper terms for sexual anatomy with their children. Thus, a child or adolescent using the words "penis," "vagina," or "vulva" to describe their anatomy would not raise concerns about sexual abuse or inappropriateness (SOR C).

Masturbation, in appropriately private settings, is considered normal child and adolescent behavior.

Young children at a similar developmental age level who are playing in a setting that does not involve coercion are also unlikely to be engaged in sexual abuse. However, when the developmental age level of the two children is markedly different, with a mature child engaging a young child in sexual behavior, this warrants investigation. Fondling genitalia in this setting is consistent with sexual abuse.

References:

American Academy of Pediatrics: Committee on Psychosocial Aspects of Child and Family Health and Committee on Adolescence: Sexuality education for children and adolescents. Pediatrics 2001;108(2):498-502.

Lahoti SL, McClain N, Girardet R, et al: Evaluating the child for sexual abuse. Am Fam Physician 2001;63(5):883-892.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

13. A 47-year-old female has been a patient of yours for many years. She continues to smoke almost 2 packs of cigarettes a day and has a number of problems including hypertension, repeated bouts of bronchitis, allergies, and insomnia.

During a visit today, the patient admits that smoking has been bad for her health and that she should quit, but she is under a great deal of stress right now at work and wants to wait about 6 months before attempting to quit.

Which stage of change is this patient in?

A) Precontemplation

B) Contemplation

C) Preparation

D) Action

E) Maintenance

Critique:

The stage of contemplation is defined as being ready to begin the healthy behavior within the next 6 months. Motivational interventions are likely to be aimed at people in this stage (SOR B).

People in the precontemplation stage are content to continue the unhealthy behavior. Those in the preparation stage are ready to change within a month, and may have already begun making small changes. People in the action stage are already engaging in the behavior change, while those in the maintenance stage have been engaged in the healthy behavior for at least 6 months.

References:

Steptoe A, Kerry S, Rink E, et al: The impact of behavioral counseling on stage of change in fat intake, physical activity, and cigarette smoking in adults at increased risk of coronary heart disease. Am J Public Health 2001;91(2):265-269.

Zimmerman GL, Olsen CG, Bosworth MF: A "stages of change" approach to helping patients change behavior. Am Fam Physician 2000;61(5):1409-1416.

(Last Modified: January 2008)

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14. Components of effective brief behavioral interventions for managing hazardous drinkers include which of the following? (Mark all that are true.)

○ **Comparisons to drinking norms**

○ **Feedback on the results of a clinical assessment**

○ A recommendation that the patient abstain from alcohol completely

○ **Patient education materials**

○ **Repeated office sessions and telephone contact to reinforce the intervention**

Critique:

The U.S. Preventive Services Task Force has found at least fair evidence that brief behavioral counseling interventions with follow-up produce small to moderate reductions in alcohol consumption that are sustained over 6- to 12-month periods or longer (SOR B). Brief interventions are focused discussions (shorter than 15 minutes) designed to promote awareness of the negative effects of alcohol and to motivate change. Components of effective interventions for hazardous drinkers in primary care include:

- feedback on the results of a clinical assessment
- a comparison to drinking norms
- a discussion about the adverse effects of alcohol consumption
- a recommendation regarding drinking limits
- a prescription to "cut down on your drinking"
- patient education materials
- a drinking diary for daily notation of alcohol consumption
- repeated office sessions and telephone contact to reinforce the intervention

References:

Fiellin DA, Reid C, O'Connor PG: Outpatient management of patients with alcohol problems. Ann Intern Med 2000;133(10):815-827.

Saitz R: Unhealthy alcohol use. N Engl J Med 2005;352(6):596-607.

Final Recommendation Statement: Unhealthy Alcohol Use in Adolescents and Adults: Screening and Behavioral Counseling Interventions. US Preventive Services Task Force, 2018.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

15. A 17-year-old patient asks about pharmacologic options to consider as part of her plan to lose weight. Accurate advice would include which of the following? (Mark all that are true.)

○ Weight loss that occurs while a patient is taking these agents is usually sustained after discontinuation of the agent

○ **Pharmacologic intervention in the absence of lifestyle intervention can decrease a person's ability to lose weight**

○ Orlistat (Alli, Xenical) is not approved for use in adolescents

○ **The majority of weight loss with orlistat occurs in the first 6–9 months of treatment**

○ Locaserin (Belviq) is available only at certified pharmacies because of its teratogenic risk

Critique:

Pharmacologic agents can be an effective part of a weight loss plan; however, patients should be counseled regarding realistic expectations and possible risks. The average expected weight loss for orlistat is approximately 10 lb in the first year, with the majority of the loss occurring in the first 6–9 months (SOR A). Much of the weight that is lost while taking these agents is regained after the drug is stopped (SOR A). Use of these agents in the absence of lifestyle interventions can actually decrease a person's ability to lose weight in the future (SOR B). Currently, only orlistat is approved for use in patients younger than 18 (SOR A). Although it is a category X drug for use in pregnancy, lorcaserin is a serotonergic agonist and its warnings and drug interactions are similar to those of other serotonergic drugs. Another drug that was recently approved by the FDA for treating obesity is phentermine/topiramate, which is available only through a limited program under a Risk Evaluation and Mitigation Strategy because of its teratogenic risk. Only certified pharmacies may distribute the drug, and females who could become pregnant are advised to have a pregnancy test before starting treatment and monthly thereafter, and to use effective contraception.

References:

Padwal R, Li SK, Lau DCW: Long-term pharmacotherapy for obesity and overweight. Cochrane Database Syst Rev 2003;(4):CD004094.

Shepard TM: Effective management of obesity. J Fam Pract 2003;52(1):34-42.

Belviq package insert. Arena Pharmaceuticals, 2012.

Qsymia package insert. VIVUS Inc, 2013.

Patient information: XENICAL (zen'i-cal) (orlistat) capsules. CHEPLAPHARM Arzneimittel GmbH, 2017.

(Last Modified: July 2013)

(Last Reviewed: July 2013)

16. True statements regarding pharmacotherapy for nicotine dependence include which of the following? (Mark all that are true.)

○ **Of the three classes of pharmacotherapy for nicotine dependence, nicotine replacement therapy (NRT) has the greatest flexibility in terms of dosage forms**

○ All forms of NRT are now available over the counter

○ The nicotine inhaler most closely mimics the uptake of smoked or chewed nicotine

○ **Combinations of different types of NRT can be used together safely**

○ **A patient using the nicotine patch who complains of early morning cravings should use the 24-hour patch**

Critique:

In general, pharmacotherapy is recommended for patients who are prepared to make a serious attempt to stop using tobacco. Nicotine replacement therapy (NRT) was the first FDA-approved pharmacotherapy for nicotine dependence treatment, and has evolved over the years to include several different forms, most of which are available over the counter. The nasal spray and inhaler remain available by prescription only; the patch (7, 14, 21 mg), gum (2, 4 mg) and lozenge (2, 4 mg) are available over the counter.

Nicotine administered via an inhaler is absorbed through the buccal mucosa, like the gum and lozenge. It has the disadvantage of being expensive, prescription only, and embarrassing for some to use; however, its efficacy is comparable to the other NRT modes, and it satisfies the tactile sensation important to many smokers.

While the Cochrane review on nicotine replacement therapy found only "weak" evidence that combinations of NRT increased success, other authors report greater abstinence with combinations, particularly the patch plus an acute form of NRT for breakthrough cravings, especially among more highly addicted smokers (level of evidence 2). Another systematic review of cessation interventions found that combination therapy is beneficial for cessation. In a smoking cessation clinic setting, increasing the types of medication use among smokers has been found to result in higher rates of cessation.

The 24-hour patch has greater efficacy than the 16-hour type, and helps curb early morning cravings more effectively. While some report that the patch disturbs sleep (e.g., nightmares), other studies indicate that the 24-hour patch actually improves sleep quality. Expert opinion indicates that some patients also benefit from applying the 24-hour patch before bedtime, which may result in a higher nicotine level on awakening (level of evidence 3).

References:

Bohadana A, Nilsson F, Rasmussen T, et al: Nicotine inhaler and nicotine patch as a combination therapy for smoking cessation: A randomized, double-blind, placebo-controlled trial. Arch Intern Med 2000;160(20):3128-3134.

Evans SE, Blank M, Sams C, et al: Transdermal nicotine-induced tobacco abstinence symptom suppression: Nicotine dose and smokers' gender. Exp Clin Psychopharmacol 2006;14(2):121-135.

Henningfield JE, Fant RV, Buchhalter AR, et al: Pharmacotherapy for nicotine dependence. Ca Cancer J Clin 2005;55(5):281-299.

Ranney L, Melvin C, Lux L, et al: Systematic review: Smoking cessation intervention strategies for adults and adults in special populations. Ann Intern Med 2006;145(11):845-856.

Shiffman S, Ferguson SG, Gwaltney CJ, et al: Reduction of abstinence-induced withdrawal and craving using high-dose nicotine replacement therapy. Psychopharmacology (Berl) 2006;184(3-4):637-644.

Mendelsohn CP: Optimising nicotine replacement therapy in clinical practice. Aust Fam Physician

2013;42(5):305-309.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

17. Moderate daily alcohol use has generally been defined as two or fewer standard alcoholic drinks/day for men and one or fewer drinks/day for women.

Which of the following would be considered a standard alcoholic drink? (Mark all that are true.)

- **12 oz of beer**
- **8.5 oz of malt liquor**
- 8 oz of table wine
- **1.5 oz of brandy**
- **1.5 oz of whiskey**

Critique:

According to the National Institute of Alcohol Abuse and Alcoholism, a standard alcoholic drink is equivalent to 12 oz of beer; 8.5 oz of malt liquor; 5 oz of table wine; 3.5 oz of fortified or dessert wine; 2.5 oz of cordial, liqueur, or aperitif; and 1.5 oz of spirits (one jigger of gin, vodka, whiskey, etc.) (SOR C).

References:

Roberts LJ, McCrady BS: Alcohol Problems in Intimate Relationships: Identification and Intervention. A Guide for Marriage and Family Therapists. National Institute on Alcohol Abuse and Alcoholism, 2003.

CDC: Fact Sheets – Alcohol Use and Your Health, 2016.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

18. One of your middle-aged female patients has decided to take your advice and lose weight. She now wants your recommendations regarding the effectiveness of various diets.

Which of the following would be accurate advice? (Mark all that are true.)

- An average caloric deficit of 300 kcal/day will result in a 1-lb weight loss per week
- Only very-low-calorie diets have been proven to aid in long-term weight loss
- Low-carbohydrate diets are too dangerous to recommend
- Low-fat diets are superior to low-calorie diets for weight loss
- **Very-low-calorie diets produce results similar to those of low-calorie diets at 1 year**
- **Meal replacement shakes can improve long-term weight loss**

Critique:

To lose weight, a person must create a caloric deficit either by increased activity or decreased caloric intake. A caloric deficit of 3500 kcal produces a weight loss of 1 lb; therefore, a caloric deficit of 500 kcal/day is required to produce a 1-lb weight loss in 1 week (SOR A). There are numerous diets published, including very-low-calorie, low-calorie, low-fat, very-low-fat, low-carbohydrate, etc., but long-term compliance is problematic.

Typically, one-third to one-half of weight loss is not maintained by diet alone. Very-low-calorie diets (400–500 kcal/day), may increase rates of early weight loss, but weight loss at 1 year is similar to that from a low-calorie diet (800–1500 kcal/day) (SOR A). Low-fat diets (fat content = 10%–19% of calories) without a decrease in total caloric intake do not produce weight loss (SOR A). All of these diets have similar results at 24 months (SOR A). Behavior modification, such as the use of meal-replacement shakes, has been proven to improve long-term weight loss (SOR B).

References:

Pirozzo S, Summerbell C, Cameron C, et al: Advice on low-fat diets for obesity. Cochrane Database Syst Rev 2002;(2):CD003640.

Shepard TM: Effective management of obesity. J Fam Pract 2003;52(1):34-42.

Sacks FM, Bray GA, Carey VJ, et al: Comparison of weight-loss diets with different compositions of fat, protein, and carbohydrates. N Engl J Med 2009;360(9):859-873.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

19. Which of the following patients should be screened for a chlamydial infection? (Mark all that are true.)

○ **An unmarried, sexually active 22-year-old female who has been in a mutually monogamous relationship with the same partner for the past 3 years**

○ **A 40-year-old divorcee with a new sexual partner in the past 2 months**

○ **A 23-year-old married pregnant female in a monogamous relationship**

○ **A 27-year-old married female in her first trimester of pregnancy, with a past history of genital herpes**

○ **A sexually active 31-year-old unmarried female who reports condom use by her boyfriend only during the "fertile" part of her cycle**

Critique:

With regard to screening for *Chlamydia* infection, the U.S. Preventive Services Task Force recommends the following:

- Screen for chlamydial infection in all sexually active nonpregnant women age 24 years or younger (SOR A)
- Screen for chlamydial infection for sexually active women older than 24 with risk factors for chlamydial infection (e.g., a history of chlamydial infection or other sexually transmitted infection, new or multiple sexual partners, inconsistent condom use, and exchanging sex for money or drugs) (SOR A)
- Screen for chlamydial infection in all pregnant women age 24 years or younger and in older pregnant women who are at increased risk (SOR B)
- Do not routinely screen for chlamydial infection in women age 25 years or older, regardless of whether they are pregnant, if they are not at increased risk (SOR C)
- Current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydial infection in men

References:

Final Recommendation Statement: Chlamydia and Gonorrhea: Screening. US Preventive Services Task Force, 2014.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

20. “Red flags” for substance abuse problems include which of the following? (Mark all that are true.)

- **Frequent absences from school**
- **Elevated blood pressures in the office**
- **Sexual dysfunction**
- **A history of frequent trauma**
- **Insomnia**

Critique:

Although not pathognomonic for substance abuse disorders, “red flags” that should raise suspicion include frequent absences from school or work, a history of frequent trauma or accidental injuries, depression or anxiety, labile hypertension, gastrointestinal symptoms, sexual dysfunction, and sleep disorders (SOR C). Other possible clues include convictions for driving while intoxicated, relationship difficulties, or a patient with a chronic disease who fails to respond in the expected manner to treatment.

References:

Mersy DJ: Recognition of alcohol and substance abuse. Am Fam Physician 2003;67(7):1529-1532.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

21. Which one of the following is the most effective screening test for detecting hazardous or harmful alcohol use?

A) The CAGE questionnaire

B) AUDIT (Alcohol Use Disorders Identification Test)

C) SMAST (Short Michigan Alcoholism Screening Test)

D) Serum measurement of γ-glutamyl transferase

E) Determination of mean corpuscular volume

Critique:

Formal screening instruments, such as the CAGE questionnaire, the Alcohol Use Disorders Identification Test (AUDIT), and the self-administered Michigan Alcoholism Screening Test (MAST) are the most effective methods for screening for alcohol disorders in primary care (level of evidence 1). Although the CAGE questionnaire appears to be best for identifying patients with alcohol abuse and dependence, AUDIT is more effective for detecting hazardous or harmful drinking, with a sensitivity of 57%–97% and a specificity of 78%–96%. AUDIT is a 10-item test that was specifically developed to detect early alcohol use problems. Biologic markers, such as aspartate aminotransferase, mean corpuscular volume, and γ-glutamyl transferase, perform poorly as a screening method for alcohol problems in primary care.

References:

Final Recommendation Statement: Unhealthy Alcohol Use in Adolescents and Adults: Screening and Behavioral Counseling Interventions. US Preventive Services Task Force, 2018.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

22. A 32-year-old female who was recently discharged from an inpatient alcohol detoxification facility requests your assistance with ongoing sobriety and relapse prevention. She admits to a decreased interest in activities and a depressed mood.

Which of the following medications might be helpful in treating her alcoholism? (Mark all that are true.)

- **Naltrexone (ReVia)**
- **Acamprosate (Campral)**
- **Disulfiram (Antabuse)**
- **Sertraline (Zoloft)**
- Buprenorphine

Critique:

A systematic review published by Cochrane in 2006 showed that naltrexone was effective for short-term treatment of alcohol dependence (level of evidence 1). It can decrease relapses and returns to drinking. Naltrexone was also effective in decreasing cravings. An evidence review published in *JAMA* in 1999 showed that both naltrexone and acamprosate were superior to placebo in treating alcoholism (level of evidence 1).

The Agency for Health Care Policy and Research (AHCPR) produced a report in 1999 that focused on the pharmacologic treatment of alcohol dependence and assessed the evidence supporting the efficacy of many of the commonly used medications. For naltrexone, the trials were of overall good quality and showed that it reduces relapses and the number of drinking days (SOR A), reduces craving and enhances abstinence (SOR B), and has a favorable harm profile. The same review reported that acamprosate enhances abstinence and reduces drinking days (SOR A) and is well tolerated (SOR A), with a favorable harm profile. The report stated that there is minimal evidence on the effect of acamprosate on craving or rates of severe relapse. It also stated that the evidence on disulfiram is mixed and the number of randomized, controlled trials is limited.

There is some evidence that disulfiram reduces drinking days (SOR B), but little evidence for enhanced abstinence. Adherence is a key predictor of the success of disulfiram. In addition, supervised use of disulfiram seems to have better outcomes.

A systematic review generally showed that pharmacologic treatment was more efficacious than placebo in terms of controlling drinking, achieving abstinence and reducing drinking days, reducing alcohol consumption, and reducing craving. This review excluded trials in which patients had a secondary psychiatric diagnosis such as depression or anxiety. Regimens were evaluated for acamprosate, atenolol, bromocriptine, buspirone, citalopram, fenfluramine, fluoxetine, γ-hydroxybutyric acid, nalmefene, naltrexone, and tiapride.

The drugs with the greatest effect size were bromocriptine, γ-hydroxybutyric acid, tiapride, and naltrexone. The effect size for placebo was 0.10. Importantly, the reviewers noted that the literature search was not of high quality and the data was not sufficient to determine whether one agent is definitely more effective than another.

A systematic review published in 2004 assessed the effect of treating comorbid depression in patients with substance abuse. This well-designed review showed that antidepressant medications provide a "modest benefit" in patients with comorbid depression and alcohol or other substance abuse. Thus, it is important to both screen and

treat comorbid psychiatric illness in patients with alcohol dependence.

Buprenorphine is approved for the treatment of opioid dependence but not for alcohol dependence.

References:

Garbutt JC, West SL, Carey TS, et al: Pharmacological treatment of alcohol dependence: A review of the evidence. JAMA 1999;281(14):1318-1325.

Nunes EV, Levin FR: Treatment of depression in patients with alcohol or other drug dependence: A meta-analysis. JAMA 2004;291(15):1887-1896.

Rösner S, Hackl-Herrwerth A, Leucht S, et al: Opioid antagonists for alcohol dependence. Cochrane Database Syst Rev 2010;(12):CD001867.

Work Group on Substance Use Disorders: Treatment of patients with substance use disorders, second edition. American Psychiatric Association. Am J Psychiatry 2006;163(8 suppl):5-82.

Williams SH: Medications for treating alcohol dependence. Am Fam Physician 2005;72(9):1775-1780.

Hendry S, Mounsey A: PURLs: Consider these medications to help patients stay sober. J Fam Pract 2015;64(4):238-240.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

23. Periodically, the National Center for Health Statistics, in collaboration with the Centers for Disease Control and Prevention, conducts nationwide surveys to assess the prevalence of overweight and obesity among the U.S. population. The most recent survey found that approximately what percentage of the U.S. adult population was obese during the years 2011–2014?

A) 24%

B) 30%

C) 36%

D) 42%

E) 50%

Critique:

The National Health and Nutrition Examination Survey (NHANES) found that the prevalence of obesity in the U.S. from 2011–2014 was about 36.5% in adults and 17% in children. The prevalence of obesity is higher in women than in men, and higher in middle-aged and older adults than in younger adults. Among various ethnic groups, obesity rates were lowest in those from Asian backgrounds and highest in the non-Hispanic black population.

References:

Ogden CL, Carroll MD, Fryar CD, Flegal KM: Prevalence of obesity among adults and youth: United States, 2011–2014. National Center for Health Statistics, NCHS Data Brief no 219, 2015.

(Last Modified: December 2015)

(Last Reviewed: December 2015)

24. You are counseling a 65-year-old male with elevated LDL-cholesterol. When discussing dietary changes to promote healthy lipid levels, which of the following would be accurate advice? (Mark all that are true.)

- He should eliminate nuts from his diet
- **He should eliminate trans fats from his diet**
- **He should limit or eliminate red meat in his diet**
- **The DASH diet well help lower his LDL-cholesterol**
- Saturated fats should comprise 25% or less of his caloric intake
- **His diet should include a high intake of fruits, vegetables, and whole grains**

Critique:

In 2013, the American Heart Association (AHA) issued lifestyle management guidelines designed to reduce cardiovascular risk. For adult patients with elevated LDL-cholesterol levels, the AHA advises following diet plans such as the DASH diet, the AHA diet, or the USDA Food Pattern. It specifically recommends reducing the percentage of calories from saturated fat, aiming for a goal of 5%–6% of calories from this source, and elimination of trans fats as much as possible. The AHA also recommends a diet that emphasizes the consumption of fruits, vegetables, and whole grains, and which includes fish, poultry, low-fat dairy products, legumes, nontropical vegetable oils, and nuts. Consumption of red meat, sweets, and sugar-sweetened beverages should be discouraged.

References:

Eckel RH, Jakicic JM, Ard JD, et al; American College of Cardiology/American Heart Association Task Force on Practice Guidelines: 2013 AHA/ACC guideline on lifestyle management to reduce cardiovascular risk: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Circulation 2014;129(25 Suppl 2):S76-S99.

(Last Modified: December 2015)

(Last Reviewed: December 2015)

25. An overweight 35-year-old female asks if you can prescribe "diet pills" for her. Her body mass index (BMI) is 31.3 kg/m . She is otherwise healthy, but her mother 2 and father both have hypertension. Her examination is notable only for a blood pressure of 138/86 mm Hg.

Which one of the following would be appropriate advice?

A) There is firm evidence that some drugs are more effective than others for short-term weight loss

B) Pharmacologic therapy produces an average weight loss of 10 kg (22 lb) over 1 year

C) Orlistat (Alli, Xenical) may reduce her risk for developing type 2 diabetes

D) Hyperkalemia and metabolic alkalosis have been linked to the use of phentermine/topiramate (Qsymia)

E) Pharmacologic therapy has been shown to reduce morbidity and mortality from obesity-related conditions

Critique:

A meta-analysis of 79 clinical trials involving diet plus sibutramine, orlistat, and phentermine, as well as several other drugs not approved for weight reduction, showed a placebo-adjusted overall average weight loss of less than 5 kg at 1 year (level of evidence 1). No conclusive evidence showed any one agent to be better than the others in terms of weight loss at 1 year. Although they are not FDA approved for diabetes prevention, several medications have been shown to decrease incident diabetes. This includes several medications used for the treatment of diabetes, such as metformin, α-glucosidase inhibitors, GLP-1 inhibitors, and thiazolidinediones, as well as the weight-loss drug orlistat.

The relative risk of diarrhea and flatulence was greater than 3.1 with orlistat compared to placebo. Since phentermine is a sympathomimetic amine, palpitations, tachycardia, and elevated blood pressure can be expected as side effects, but the drug is not contraindicated unless the patient has moderate to severe hypertension (SOR A). Topiramate inhibits carbonic anhydrase activity and has been linked to hypokalemia; hyperchloremic, non–anion gap metabolic acidosis; and kidney stone formation. For patients started on phentermine/topiramate a blood chemistry profile that includes bicarbonate, creatinine, potassium, and glucose is recommended at baseline and periodically during treatment.

References:

Li Z, Maglione M, Tu W, et al: Meta-analysis: Pharmacologic treatment of obesity. Ann Intern Med 2005;142(7):532-546.

Snow V, Barry P, Fitterman N, et al: Pharmacologic and surgical management of obesity in primary care: A clinical practice guideline from the American College of Physicians. Ann Intern Med 2005;142(7):525-531.

Qsymia package insert. VIVUS Inc, 2013.

Wharton S, Serodio KJ: Next generation of weight management medications: Implications for diabetes and CVD risk. Curr Cardiol Rep 2015;17(5):35.

American Diabetes Association: 5. Prevention or delay of type 2 diabetes: Standards of Medical Care in Diabetes—2018. Diabetes Care 2018;41(Suppl 1):S51-S54.

(Last Modified: July 2013)

(Last Reviewed: July 2013)

26. True statements regarding pharmacotherapy for tobacco cessation include which of the following? (Mark all that are true.)

- **Pharmacotherapy is useful for most smokers who smoke more than 10–15 cigarettes/day**
- Most of the time, physicians recommend pharmacotherapy to patients who smoke
- **When combined with even brief counseling, first-line pharmacotherapy for cessation doubles the abstinence rate among persons making a quit attempt**
- The FDA has approved nortriptyline for use in smoking cessation
- **Bupropion (Wellbutrin) is one of two antidepressants that are effective for smoking cessation**

Critique:

The use of pharmacotherapy for tobacco cessation is now a mainstay in treating patients who smoke or use spit tobacco. The U.S. Public Health Service guidelines recommend first-line drugs for cessation in all or most smokers who smoke 10–15 cigarettes/day (strength of evidence A). Clinical interventions as brief as 3 minutes also increase abstinence rates (SOR A). One study found that most physicians consistently ask patients who smoke about their smoking status and advise them to stop (86%), but only 13% said they usually refer smokers to others for appropriate treatment, and only 17% said they usually arrange for follow-up visits to address smoking. Only 31% said they usually advise the use of nicotine replacement therapy, and 25% said they usually prescribe other medication for cessation. Only 7% regularly refer patients to a quitline.

The updated clinical practice guideline has added sustained-release bupropion, the nicotine inhaler, nicotine nasal spray, and varenicline to its list of first-line medications that patients should be encouraged to use. All are available only by prescription. It should be noted, however, that in June 2011, the FDA issued a drug safety communication notifying the public that the smoking cessation aid Chantix (varenicline) may be associated with a small, increased risk of certain cardiovascular adverse events in patients who have cardiovascular disease.

Nicotine gum and transdermal nicotine, the only two recommended medications in the original guideline in 1996, remain on the list, and the nicotine lozenge is another over-the-counter option. The gum and lozenge are both available as an over-the-counter medication in either 2- or 4-mg strengths. Clonidine, in dosages of 0.1–0.75 mg/day delivered either transdermally or orally, and nortriptyline are recommended as second-line agents. Neither of these agents has been approved by the FDA for this use, however. Neither benzodiazepines nor α-adrenergic blocking agents have been found to have a beneficial effect on smoking cessation.

References:

Fiore MC, Jaén CR, Baker TB, et al: Treating tobacco use and dependence: 2008 update. Clinical Practice Guideline, US Public Health Service, 2008.

Schmelzle J, Rosser WW, Birtwhistle R: Update on pharmacologic and nonpharmacologic therapies for smoking cessation. Can Fam Physician 2008;54(7):994-999.

Final Recommendation Statement: Tobacco Smoking Cessation in Adults, Including Pregnant Women: Behavioral and Pharmacotherapy Interventions.. US Preventive Services Task Force, 2015.

Clinical guidelines for prescribing pharmacotherapy for smoking cessation. Agency for Healthcare Research and Quality, 2012.

FDA Drug Safety Communication: Safety review update of Chantix (varenicline) and risk of cardiovascular adverse events. US Food and Drug Administration, 2012.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

27. True statements regarding the use of antidepressants for smoking cessation include which of the following? (Mark all that are true.)

- Bupropion (Wellbutrin) may only be used as monotherapy for smoking cessation
- **Bupropion is safe to use in patients with heart disease, including hospitalized patients**
- **The U.S. Public Health Service (USPHS) guidelines on tobacco cessation recommend against the use of all SSRIs for smoking cessation**
- USPHS guidelines on tobacco cessation recommend against the use of all tricyclic antidepressants for smoking cessation
- **Bupropion is contraindicated in patients with an eating disorder**

Critique:

Bupropion is an atypical antidepressant thought to inhibit dopamine and norepinephrine reuptake. It approximately doubles the chances of smoking cessation compared with placebo. A Cochrane review of antidepressants for smoking cessation found that both bupropion and nortriptyline are effective, while other TCAs, SSRIs, and anxiolytics are ineffective (level of evidence 1). The FDA has not approved nortriptyline for smoking cessation, but it is listed as a second-line drug (along with clonidine) in the U.S. Public Health Service guidelines.

Bupropion sustained-release formulations are approved for smoking cessation. Generally well tolerated, bupropion may be particularly useful in patients with COPD. It is also quite safe for use with patients who have coronary artery disease, including in hospital settings. Researchers at Massachusetts General Hospital found that it improves smoking cessation rates compared with placebo among inpatients with heart disease. Caution is indicated, however, for patients with unstable angina or acute coronary syndrome.

The 2008 Public Health Service tobacco cessation guideline revision confirms the utility of combining bupropion and nicotine replacement therapy (SOR A). Bupropion is combined with either the nicotine patch or an intermittent-dose formulation of nicotine replacement, or with both the patch and an intermittent dose for patients with significant breakthrough cravings.

Bupropion is contraindicated in patients with seizure disorders, a previous history of significant head injury, or anorexia nervosa or bulimia, as well as those taking another medication that lowers the seizure threshold. It is listed as Category C for use in pregnancy.

Nortriptyline is the only other antidepressant with evidence showing its effectiveness for smoking cessation. Useful in both depressed and nondepressed patients, it has the added advantage of being very inexpensive. Dosing is familiar to most family physicians, with titration up to 50–75 mg at bedtime. Anticholinergic side effects prevent its more frequent use, although its results for smoking cessation rival those of bupropion. It is not FDA-approved for smoking cessation.

The Cochrane review also identifies clonidine as potentially useful in smoking cessation, but its dose-dependent side effects, including sedation, dry mouth, and dizziness, limit its use. The U.S. Public Health Service guidelines list it as a second-line agent. It is not approved for smoking cessation by the FDA.

References:

Haggstram FM, Chatkin JM, Sussenbach-Vaz E, et al: A controlled trial of nortriptyline, sustained-release bupropion and placebo for smoking cessation: Preliminary results. Pulm Pharmacol Ther 2006;19(3):205-209.

Tonstad S, Farsang C, Klaene G, et al: Bupropion SR for smoking cessation in smokers with cardiovascular disease: A multicentre, randomised study. Eur Heart J 2003;24(10):946-955.

Wagena EJ, Knipschild PG, Huibers MJ, et al: Efficacy of bupropion and nortriptyline for smoking cessation among people at risk for or with chronic obstructive pulmonary disease. Arch Intern Med 2005;165(19):2286-2292.

Fiore MC, Jaén CR, Baker TB, et al: Treating tobacco use and dependence: 2008 update. Clinical Practice Guideline, US Public Health Service, 2008.

Hughes JR, Stead LF, Hartmann-Boyce J, et al: Antidepressants for smoking cessation. Cochrane Database Syst Rev 2014;(1):CD000031.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

28. A 45-year-old obese male expresses concern about his inability to maintain an erection long enough to have sexual intercourse with his wife. He takes clonidine (Catapres) for hypertension and ibuprofen for osteoarthritis, and takes a daily multivitamin. He smokes 1 pack of cigarettes per day. He denies heavy drinking, but his wife reports frequent binge drinking and intermittent blackouts.

Appropriate counseling regarding his erectile dysfunction (ED) would include which of the following statements? (Mark all that are true.)

- Most cases of ED have a psychogenic etiology
- **Cigarette smoking is an independent risk factor for ED**
- **Clonidine may be contributing to his ED**
- **Heavy alcohol use may be contributing to his ED**
- **Regular exercise and weight loss may help reverse ED**

Critique:

Erectile dysfunction (ED) is common, affecting an estimated 30 million men in the United States, and becomes more common with advancing age. The Health Professionals Follow-up Study reported moderate to severe ED in 12% of men younger than 59, 22% of men ages 60–69, and 30% of men older than 69 (level of evidence 3).

It was previously thought that the majority of cases of ED were caused by psychogenic factors. However, evidence suggests that approximately 80% of ED is due to organic disease. This can be divided into hormonal, vasculogenic, and neurogenic causes. Vasculogenic etiologies are the most common, with arterial or "inflow" disorders accounting for more problems than venous disorders. It is important to remember, however, that even though the primary etiology of ED is most often organic, psychological factors frequently coexist and play a role in the dysfunction.

Cigarette smoking is an independent risk factor for ED. In addition, it may contribute to many other chronic illnesses that can cause ED, including hypertension and atherosclerotic disease.

Many medications can cause or contribute to ED. It is estimated that as many as 25% of ED cases are due to medication side effects. This highlights the crucial role of the primary care physician in reviewing medication lists and modifying treatment regimens as part of addressing ED. Common offenders include antihypertensives, psychoactive medications, H_2-receptor blockers, phenobarbital, phenytoin, and ketoconazole.

Substance abuse, including heavy alcohol use, can also cause ED. The pathologic mechanism is thought to involve altered hormonal metabolism and polyneuropathy.

Many modifiable risk factors are associated with an increased risk of ED, including level of physical activity and BMI. A small randomized, controlled trial showed that lifestyle modification, including increased exercise and weight loss, improved erectile function in men who were obese at baseline. According to the American Urological Association's 2006 guidelines, there is some evidence that suggests that regular exercise and maintenance of an ideal body weight may prevent or reverse ED.

References:

Coughlin L: Practice guidelines: AUA updates guidelines on management of erectile dysfunction. Am Fam Physician 2006;73(2):340.

Erectile Dysfunction Guideline Update Panel: The Management of Erectile Dysfunction: An Update. American Urological Association, 2006.

Esposito K, Giugliano F, Di Palo C, et al: Effect of lifestyle changes on erectile dysfunction in obese men: A randomized controlled trial. JAMA 2004;291(24):2978-2984.

Miller TA: Diagnostic evaluation of erectile dysfunction. Am Fam Physician 2000;61(1):95-104, 109-110.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

29. Which of the following office strategies are recommended by the Centers for Disease Control for preventing STDs? (Mark all that are true.)

- **Educating patients at risk**
- **Incorporating the 5 Ps during sexual history taking**
- **Counseling and evaluating partners of infected patients**
- Recommending abstinence as the preventive measure of choice

Critique:

Education of patients at risk for STDs is important for prevention, as are counseling and evaluating partners of infected patients, with treatment if necessary. The 5 Ps are important when taking a sexual history, and include partners, prevention of pregnancy, protection from STDs, practices, and past history of STDs. This information provides comprehensive knowledge of the patient's sexual risk-taking. While abstinence is obviously the most certain way to prevent STDs, most patients would refuse this option (SOR C).

Additional prevention strategies recommended by the CDC include identification of asymptomatic infected individuals and symptomatic individuals unlikely to seek treatment, and preexposure vaccination (SOR C).

References:

Workowski KA, Bolan GA: Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1-137.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

30. True statements regarding telephone quit lines for smokers include which of the following? (Mark all that are true.)

- **They are free for smokers**
- **They connect smokers with trained counselors who prepare a customized cessation plan**
- They are available only to English-speaking patients
- They have been shown to be more effective than nicotine replacement therapy
- They are a widely used form of tobacco control

Critique:

Telephone quit lines are free for smokers. These toll-free quit lines, one of the least-used forms of tobacco control, connect smokers to trained counselors who take an individual smoking history, prepare a customized cessation plan that includes pharmacotherapy when appropriate, and provide follow-up telephone calls to assess progress. They are available in all 50 states and Puerto Rico, and national services are provided by groups such as the American Cancer Society. The Department of Health and Human Services offers a national number, 1-800-QUITNOW, that will route callers to the appropriate service for their region.

Quit lines offer the ability to serve diverse and multilingual populations, as well as anonymity. Although quit lines are not proven to be more effective than nicotine replacement therapy, a recent Cochrane review estimated an odds ratio of 1.56, just below the 1.74 for nicotine replacement therapy (level of evidence 2).

References:

Schroeder SA: What to do with a patient who smokes. JAMA 2005;294(4):482-487.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

31. Behavioral therapy techniques that help promote weight loss include which of the following? (Mark all that are true.)

- **Self-monitoring**
- **Classical conditioning**
- **Stimulus control**
- Mass trials
- **Food provision/meal replacements**

Critique:

Self-monitoring involves keeping food and activity records. Such behavior is reactive, which means that it not only allows for assessment of change but also tends to motivate patients to lose weight. *Classical conditioning* indicates that eating is often prompted by antecedent events (cues) that become strongly linked to food intake. Being aware of these triggers helps behavior change. *Stimulus control* attempts to manage the cues associated with eating. One example of this would be setting up an environment where eating unhealthy food would be difficult. *Food provision/meal replacements* are frequently part of a behavioral program where appropriate nutrition is combined with the allotment of a reasonable number of calories (level of evidence 3). They have been consistently validated as helpful techniques for weight loss.

Mass trials, a technique often recommended for treatment of phobias, involves exposing patients for long periods of time to situations that frighten them.

References:

Foster GD, Makris AP, Bailer BA: Behavioral treatment of obesity. Am J Clin Nutr 2005;82(1 suppl):230S-235S.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

32. The mother of two daughters asks if they should receive HPV vaccine. One daughter is 12 years old, and the mother is certain she has never been sexually active. The other daughter is 21 years old and the mother believes she has had two sexual partners.

Which of the following would be appropriate advice? (Mark all that are true.)

- **The 12-year-old is in the recommended target age range for the vaccine**
- The 12-year-old should receive a three-dose series
- The vaccine is not recommended after the age of 18
- The vaccine is not recommended for patients who are already sexually active

Critique:

HPV is the most common sexually transmitted infection in the world, and there is good evidence that most individuals who are sexually active will be exposed to HPV at some time. In the United States, it is estimated that 20 million people are infected with this virus.

HPV vaccines are highly immunogenic and efficacious, and are very well tolerated. The CDC Advisory Committee on Immunization Practices (ACIP) recommends routine administration of the HPV vaccine for girls at 11–12 years of age, so that they are vaccinated before becoming sexually active. The minimum age approved for the vaccine is 9 years. In addition, catch-up vaccination has been recommended for females ages 12–26 if they have not been previously vaccinated or if they have not completed the vaccine series (SOR A). The FDA has approved the vaccine for females up to age 26. HPV vaccination for women older than age 26 is an off-label use (SOR A).

While the vaccine should be targeted at females who have not yet initiated sexual activity, sexually active females who have not yet been exposed to the viral types covered in the vaccine may still benefit. Studies show that even females who have been sexually active for years may not have been exposed to the four virus types covered in the quadrivalent vaccine. According to the ACIP, females who are sexually active should still be offered the vaccine.

The recommended HPV series is two doses for girls and boys who start the vaccine series before the age of 15. The second dose should be given 6–12 months after the first dose. For patients who begin the vaccine series at age 15 or after, a three-dose schedule is recommended by the CDC, with the second dose given 1–2 months after the first dose and the third dose 6 months after the first dose.

References:

Petrosky E, Bocchini JA, Hariri S, et al: Use of 9-valent human papillomavirus (HPV) vaccine: Updated HPV vaccination recommendations of the advisory committee on immunization practices. MMWR Morb Mortal Wkly Rep 2015;64(11):300-304.

National Center for Immunization and Respiratory Diseases: Recommended immunization schedule for children and adolescents aged 18 years or younger, UNITED STATES, 2017. Centers for Disease Control and Prevention website.

Meites E, Kempe A, Markowitz LE: Use of a 2-dose schedule for human papillomavirus vaccination — Updated recommendations of the Advisory Committee on Immunization Practices. MMWR Morb Mortal Wkly Rep 2016;65(49):1405-1408.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

33. A 44-year-old male with hypercholesterolemia sees you for a routine visit. He tells you that he has started a resistance exercise program. He states that his routine consists of the following: chest press, biceps curl, shoulder press, abdominal crunch, and quadriceps extension. He says he works out 3 days a week, completing 2 sets of 10 repetitions.

Which one of the following adjustments to his routine would you recommend?

A) The frequency of training should be increased to at least 5 times/week

B) He should strive for a target heart rate of 50%–60% of his maximum rate in the middle of his routine

C) He should train the front and back of major muscle groups

D) He should increase the number of repetitions to 15–20

E) He should do fewer repetitions with heavier weights

Critique:

Although aerobic exercise has traditionally been emphasized for its health benefits, research increasingly suggests that complementary resistance training also has favorable effects on cardiovascular function, coronary risk factors, and physical and psychosocial well-being. The American Heart Association recommends the inclusion of resistance training for healthy persons of all ages, and for many patients with chronic diseases, including cardiovascular disease (SOR C). Programs that include a single set of 8–10 different exercises performed 2–3 days a week have been shown to be beneficial. Although a greater frequency of training is an option, the additional gain is usually small.

While the number of exercises can be reduced, training the front and back of major muscle groups (e.g., chest/back, biceps/triceps) is recommended. A repetition range of 8–12 is recommended for healthy participants younger than 50–60 years of age. To reduce the risk for injury, 10–15 repetitions at a lower relative resistance is generally recommended for cardiac patients and healthy participants over 50–60 years of age. Higher-intensity efforts (fewer repetitions with heavier weights) increase the risk of musculoskeletal injury.

References:

Pollock ML, Franklin BA, Balady GJ, et al: AHA Science Advisory. Resistance exercise in individuals with and without cardiovascular disease: Benefits, rationale, safety and prescription. An advisory from the Committee on Exercise, Rehabilitation, and Prevention, Council on Clinical Cardiology, American Heart Association; Position paper endorsed by the American College of Sports Medicine. Circulation 2000;101(7):828-833.

Williams MA, Haskell WL, Ades PA, et al: Resistance exercise in individuals with and without cardiovascular disease: 2007 update: A scientific statement from the American Heart Association Council on Clinical Cardiology and Council on Nutrition, Physical Activity, and Metabolism. Circulation 2007;116(5):572-584.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

34. True statements regarding the effects of regular aerobic exercise include which of the following? (Mark all that are true.)

- **It reduces blood pressure in normotensive patients**
- **It reduces blood pressure in hypertensive patients**
- **It reduces insulin resistance**
- Any favorable impact on blood pressure is dependent on associated weight loss
- Attenuation of atherosclerosis is dependent on statin use

Critique:

Regular aerobic exercise has been shown to reduce blood pressure in both normotensive and hypertensive individuals (level of evidence 1). Studies have shown a lowering of blood pressure even in the absence of weight loss. Regular aerobic exercise has been shown to reduce insulin resistance and, in conjunction with weight loss, has been shown to reduce the progression from prediabetes to type 2 diabetes (level of evidence 1). In the DNA Polymorphism and Carotid Atherosclerosis (DNASCO) study, regular aerobic exercise was shown to attenuate atherosclerosis, as measured by carotid artery intima-media thickness, in men not taking statins (level of evidence 3).

References:

Centers for Disease Control and Prevention Primary Prevention Working Group: Primary prevention of type 2 diabetes mellitus by lifestyle intervention: Implications for health policy. Ann Intern Med 2004;140(11):951-957.

Rauramaa R, Halonen P, Vaisanen SP, et al: Effects of aerobic physical exercise on inflammation and atherosclerosis in men: The DNASCO Study: A six-year randomized, controlled trial. Ann Intern Med 2004;140(12):1007-1014.

Elley CR, Arroll B (commentators): Review: Aerobic exercise reduces systolic and diastolic blood pressure in adults. Evid Based Med 2007;7(6):170.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

35. A 23-year-old gravida 5 para 4 sees you for follow-up 26 days after a routine vaginal delivery. She is not breastfeeding and would like to start a contraceptive method. Her previous medical history is notable only for a past history of migraine headaches.

True statements regarding the initiation of contraception in this patient include which of the following? (Mark all that are true.)

○ A history of migraine without aura would preclude the use of a progestin-only method at this visit

○ Regardless of her headache history, a history of migraine with aura would preclude the use of a progestin-only method at this visit

○ A history of migraines without aura would preclude the use of a combined estrogen/progestin method at any time post partum

○ **A history of migraine with aura would preclude the use of a combined estrogen/progestin method at any time post partum**

Critique:

Timely initiation of contraception after pregnancy is important, as many women unintentionally become pregnant while waiting to start a new method of birth control. Many physicians traditionally delay prescribing contraception until normal menses begin, until a set number of weeks post partum, or until a breastfed infant is weaned. Other common reasons for delay are the lack of a recent physical examination or Papanicolaou (Pap) smear.

Recent clinical evidence suggests that hormonal birth control can be started at any point in the menstrual cycle (SOR C). A trial of the "quick start" method revealed that women who were given their first birth control pill during an office visit had higher adherence rates than women who had a delayed start. When initiation of contraception is delayed until the next menses, or there is a delay between receiving a prescription and starting the contraceptive, 25% of women never fill the prescription and 50% of women discontinue its use within 1 year.

The 2004 WHO guidelines advise against the use of combined estrogen/progestin methods in women with migraine with aura, regardless of the patient's age, because of an increased risk for stroke. The prescription of combined methods of birth control for a woman under the age of 35 who has migraine without aura is listed as a WHO category 2 (advantages of method generally outweigh the risks). In a woman over the age of 35 with migraine without aura, use of combined methods is listed as a category 3 (method not usually recommended unless other, more appropriate methods are not available or not acceptable). Progestin-only methods and a copper IUD are the acceptable choices in this situation.

References:

Medical Eligibility Criteria for Contraceptive Use, ed 3. World Health Organization, 2004.

US medical eligibility criteria for contraceptive use, 2010. MMWR Recomm Rep 2010;59(RR-4):1-86.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

36. During a sports preparticipation evaluation, a 17-year-old female who has been your patient for 8 years tells you she has been sexually active for 6 months.

Which of the following sexual health counseling interventions would be helpful? (Mark all that are true.)

- **Linking prevention of pregnancy and prevention of STDs**
- **Encouraging condom use regardless of whether another contraceptive method is used**
- **Providing periodic counseling about effective contraceptive methods**
- **Obtaining a more detailed sexual history**
- **Encouraging parent involvement in sex education**
- Avoiding direct discussion of abstinence

Critique:

The American Academy of Family Physicians, the American Academy of Pediatrics, and the American Medical Association have issued guidelines for counseling adolescents about sexual activity (SOR C). These guidelines suggest linking pregnancy prevention and STD prevention, and encouraging condom use regardless of whether another contraceptive method is used. Adolescents should also be provided with information about contraception, although abstinence should be emphasized as an option. Parental involvement in the education process is important. If an adolescent is already sexually active, a detailed sexual history should be obtained to assess risk and to help direct counseling.

References:

As-Sanie S, Gantt A, Rosenthal MS: Pregnancy prevention in adolescents. Am Fam Physician 2004;70(8):1517-1524.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

37. Behavioral treatment strategies for weight control include which of the following? (Mark all that are true.)

- **Reinforcing the adoption of positive behaviors**
- Focusing mostly on the behavior itself and less on the conditions that may influence the behavior
- **Incorporation of cognitive therapies**
- **Being process oriented**
- **Being goal oriented**
- Advocating large rather than small changes

Critique:

Behavioral treatment focuses extensively not only on the behavior itself, but on the antecedent events that elicit the behavior. Such treatment often shapes correct behavior by seeking small rather than large changes and incrementally working up to more difficult goals. Positive behaviors are rewarded in order to increase their likelihood. As a process-oriented treatment, behavioral therapy helps patients identify how to change; once a goal is specified, patients are encouraged to examine factors that facilitate or hinder goal achievement (level of evidence 3).

References:

Foster GD, Makris AP, Bailer BA: Behavioral treatment of obesity. Am J Clin Nutr 2005;82(1 suppl):230S-235S.

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(Last Reviewed: January 2008)

38. A 29-year-old female comes in for her annual examination. She indicates that she generally has 1–2 glasses of wine with dinner on weeknights, and up to 3–4 glasses on weekends when she and her husband go out with friends. Your evaluation reveals her to be in excellent physical health without problems at work or with her social life.

According to criteria established by the National Institute on Alcohol Abuse and Alcoholism, her alcohol use would be classified as

A) moderate drinking

B) risky drinking

C) harmful drinking

D) alcohol abuse

E) alcohol dependence

Critique:

Categories of alcohol use have been established by the National Institute on Alcohol Abuse and Alcoholism.

Moderate drinking is defined as two or fewer standard alcohol drinks per day in males and one or fewer per day in females.

Problem drinking has been defined as nondependent drinking that results in adverse consequences for the drinker.

Risky patterns include high-volume drinking (14 or more standard drinks per week on average for males and 7 or more standard drinks for females), high-quantity consumption (i.e., consumption on any given day of 5 or more standard drinks for males and 4 or more standard drinks for females), or any consumption within certain contexts (e.g., during pregnancy, when certain health conditions are present, while taking certain medications) (SOR C). Although patients with a risky drinking pattern by definition have not developed adverse consequences, their pattern is felt to place them at risk for such consequences.

Alcohol abuse is a maladaptive pattern of drinking leading to clinically significant impairment or distress. *Alcohol dependence* is characterized by multiple symptoms, including tolerance, signs of withdrawal, and diminished control over drinking.

References:

Roberts LJ, McCrady BS: Alcohol Problems in Intimate Relationships: Identification and Intervention. A Guide for Marriage and Family Therapists. National Institute on Alcohol Abuse and Alcoholism, 2003.

Saitz R: Unhealthy alcohol use. N Engl J Med 2005;352(6):596-607.

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(Last Reviewed: January 2008)

39. Approximately what percentage of patients seen in a family practice setting have substance abuse problems, excluding tobacco use?

A) 5%

B) 10%

C) 20%

D) 40%

E) 50%

Critique:

Substance abuse is usually defined as problematic use of alcohol, illicit drugs, or tobacco. It is considered by many health policy experts to be the number one health problem in the United States. Deaths associated with alcohol or drug abuse are estimated at 100,000/year, costing society $100 billion/year. Substance abuse frequently goes unrecognized in the primary care setting, making recognition of its prevalence critical.

While an estimated 10% of adults in the United States have drug and/or alcohol problems, approximately 20% of patients seen by a family physician have substance abuse problems, not including tobacco (level of evidence 2). Patients with substance abuse problems are also more likely to develop medical problems and more likely to access care frequently, compared to the general population.

Typical red flags in the history of patients with substance abuse problems include relationship difficulties, unexplained trauma, DUI, and an erratic occupational history. In addition, patients with mental health disorders have a higher prevalence of substance abuse, especially those with depression and personality disorders.

The National Institute on Drug Abuse (NIDA) has a website with resources for clinicians spanning clinical practice, useful research, and toolboxes (http://www.nida.nih.gov).

References:

Mersy DJ: Recognition of alcohol and substance abuse. Am Fam Physician 2003;67(7):1529-1532.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

40. A 32-year-old male presents to your office for help for his drug abuse problem. He has abused methamphetamine for 8 years, and was recently incarcerated for methamphetamine-related charges.

Considerations regarding withdrawal in this situation include which of the following? (Mark all that are true.)

○ Symptoms related to methamphetamine withdrawal are similar to those seen with opioid and sedative withdrawal

○ Multiple medications, such as buprenorphine and acamprosate (Campral), have been approved for managing withdrawal from methamphetamine or other stimulants

○ **Methamphetamine withdrawal is frequently associated with profound dysphoria and subsequent potential suicidal ideation or suicide attempts**

○ Persistent headaches are an expected sequela of methamphetamine withdrawal and do not require further evaluation

○ Pharmacologic therapy is the cornerstone of substance abuse treatment

Critique:

Cocaine and amphetamines (such as methamphetamine) are the most commonly abused stimulants. The process of detoxification involves interventions targeted at managing the acute intoxication, as well as the withdrawal period. It is the first step for patients who wish to become abstinent or who are in mandatory abstinence programs. In contrast, treatment or rehabilitation is the provision of ongoing services with the goal of promoting recovery.

Family physicians are often called on to assist in detoxification in both outpatient and inpatient settings. In addition to detoxification, the physician must address comorbid psychiatric illness and general medical disease. Comprehensive psychiatric management is the cornerstone of substance abuse treatment (SOR A) and will usually necessitate referral.

The symptoms of withdrawal from methamphetamine differ from those of alcohol, opioids, or sedatives. Common symptoms include fatigue, anxiety, irritability, depression, poor concentration, hypersomnia, psychomotor retardation, increased appetite, drug craving, and paranoia.

There are no FDA-approved medications for the treatment of methamphetamine withdrawal. Acamprosate is used for the management of alcohol dependence. Buprenorphine is approved for opioid dependence. There is limited evidence that some medications may be helpful in amphetamine dependence and abuse. Fluoxetine, amlodipine, imipramine, and desipramine may have very limited benefits. In particular, fluoxetine may help with cravings in the context of short-term treatment, and imipramine may increase adherence to medium-term treatment. However, no particular approach has demonstrated efficacy for the overall treatment of amphetamine abuse.

A commonly overlooked, and possibly lethal, component of stimulant withdrawal is profound dysphoria, involving negative thoughts and feelings and depressed mood. This may lead to suicidal ideation and attempts. The depressed affect and dysphoria associated with stimulant withdrawal is more profound and often longer lasting for methamphetamine abusers. Thus, these patients warrant careful monitoring and treatment for depression and suicidality.

Patients who are withdrawing from stimulants, including methamphetamines, often complain of headache. However, persistent headaches may be due to intracerebral, subarachnoid, or subdural bleeding, and must be evaluated appropriately.

References:

Physical detoxification services for withdrawal from specific substances, in Center for Substance Abuse Treatment (CSAT): Detoxification and Substance Abuse Treatment. Treatment Improvement Protocol (TIP) Series 45. DHHS pub no (SMA) 06-4131, 2006.

Srisurapanont M, Jarusuraisin N, Kittirattanapaiboon P: Treatment for amphetamine dependence and abuse. Cochrane Database Syst Rev 2001;(4):CD003022.

Practice Guideline for the Treatment of Patients With Substance Use Disorders, ed 2. American Psychiatric Association, 2010.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

41. A 60-year-old female with a history of stable angina tells you that a friend of hers has told her that taking 400 IU of vitamin E daily has been shown to maintain and improve one's health.

Which one of the following would you tell her regarding this supplement?

A) Vitamin E may help prevent macular degeneration

B) Vitamin E has been shown to reduce the risk of Alzheimer's dementia

C) Vitamin E is an antioxidant and may reduce the risk of certain cancers

D) Vitamin E may reduce her risk of a heart attack

E) High-dose vitamin E supplementation should be avoided

F) Although the benefits are unproven, at that dosage vitamin E is regarded as safe

Critique:

The use of supplements is very common, especially among the older population. Unfortunately, many people view these agents as safe because they are sold over the counter and marketed as "natural." Asking patients about supplements and over-the-counter medications they may be taking is very important, especially in patients with multiple chronic conditions.

Vitamin E has not been proven to prevent macular degeneration (SOR C), to reduce the risk of cancers or cardiac events (SOR B), or to prevent Alzheimer's dementia. High-dose vitamin E supplementation (400 IU/day or more) has been associated with an increase in all-cause mortality, particularly in patients with chronic medical illnesses (SOR B). For these reasons, additional vitamin E is not recommended for women (SOR C).

References:

Miller ER III, Pastor-Barriuso R, Dalal D, et al: Meta-analysis: High-dosage vitamin E supplementation may increase all-cause mortality. Ann Intern Med 2005;142(1):37-46.

Prevention of Alzheimer's Disease by Vitamin E and Selenium (PREADVISE). National Institute on Aging, National Cancer Institute. 2002-2013.

Taylor HR, Tikellis G, Robman LD, et al: Vitamin E supplementation and macular degeneration: Randomised controlled trial. BMJ 2002;325(7354):11.

Lee IM, Cook NR, Gaziano JM, et al: Vitamin E in the primary prevention of cardiovascular disease and cancer: The Women's Health Study: A randomized controlled trial. JAMA 2005;294(1):56-65.

(Last Modified: January 2008)

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42. The abbreviated Fagerstrom Test for Nicotine Dependence is used to determine the intensity of addiction in smokers. This test consists of which one of the following sets of questions?

A) Do you find it difficult to refrain from smoking in places where it is forbidden (e.g., church, library, movies)? How soon after you wake do you smoke your first cigarette?

B) How soon after you wake do you smoke your first cigarette? How many cigarettes do you smoke each day?

C) Which cigarette would you most hate to give up? How soon after you wake do you smoke your first cigarette?

D) Do you smoke if you are so ill that you are in bed most of the day? Which cigarette would you most hate to give up?

Critique:

The Fagerstrom Test for Nicotine Dependence is available in both a long form and an abbreviated form. Use of this test can help a physician determine the intensity of a smoker's addiction, and thereby help determine dosages for medications used to help smokers quit (level of evidence 3).

The short form of the test asks only when the patient smokes the first cigarette of the day and how many cigarettes are smoked each day. These questions have been shown to be both valid and reliable.

The long form asks about smoking at inappropriate places and times, including during illnesses, and about when cravings are strongest.

References:

Mallin R: Smoking cessation: Integration of behavioral and drug therapies. Am Fam Physician 2002;65(6):1107-1115.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

43. True statements regarding reimbursement for tobacco cessation include which of the following? (Mark all that are true.)

- Coverage/reimbursement for tobacco cessation services have no impact on cessation rates
- Physicians may use "health and behavior" codes when billing for smoking cessation services
- Most state Medicaid programs pay for all medication and counseling services recommended by the U.S. Public Health Service tobacco cessation guidelines
- **Medicare will reimburse both brief and intensive counseling for cessation services, in outpatient clinic and inpatient hospital settings**

Critique:

Smoking cessation interventions discussed in the U.S. Public Health Services guidelines have been found to be very cost-effective clinical interventions. Employer-provided cessation services are relatively inexpensive, and should become the standard for private insurance providers (SOR C). However, it is clear that insurance coverage influences both patients and clinicians in their utilization of tobacco cessation services.

Coverage for cessation has been found to have a positive effect on cessation. For example, compared to women in states with no coverage, women in states with extensive Medicaid coverage for cessation were 1.6 times more likely to quit smoking and to maintain cessation during pregnancy (level of evidence 3). European studies of cessation coverage and provider reimbursement indicate that when such benefits exist, cessation rates double.

Medicare pays for both inpatient and outpatient consultation, and will cover two quit attempts per year. Each quit attempt may include a maximum of four intermediate or intensive counseling sessions, with the total annual benefit covering up to eight sessions in a 12-month period. The health care provider and patient have the flexibility to choose between intermediate and intensive counseling.

To be eligible to receive this benefit, a beneficiary *must* have a condition that is adversely affected by smoking or tobacco use, or the metabolism or dosing of a medication that is being used to treat a condition the beneficiary has must be adversely affected by smoking or tobacco use. This condition must be billed as the primary diagnosis.

In addition, Medicare Part D will cover smoking cessation treatments prescribed by a physician. However, over-the-counter treatments, such as nicotine patches or gum, are not covered.

In 38 states, Medicaid programs cover some tobacco-dependence treatments (i.e., counseling or medication) for all Medicaid recipients; 4 states offer coverage only for pregnant women; Oregon is the only state that offers coverage for all medication and counseling treatments recommended by the 2000 Public Health Service guideline; 7 states (including Oregon) cover all recommended medications and at least one form of counseling.

Although about a third of insurance companies responding in the 2002 Addressing Tobacco in Managed Care survey reported that reimbursement is available to providers for smoking cessation counseling or assistance, many payers still provide little or no payment. In such cases, treatment must be incorporated into a comprehensive preventive medicine visit or a visit for another problem. If the patient has symptoms of cardiac or pulmonary disease related to smoking, for example, counseling would be billed with an office or other outpatient, hospital, or consultation code as appropriate.

"Health and behavior" codes can be used by *non-physicians* who are licensed (advanced practice nurse, psychologist, etc.) and for whom bills can be submitted for other practice-related encounters. A tobacco treatment specialist without a license in another health field cannot bill for services using these codes.

References:

Cromwell J, Bartosch WJ, Fiore MC, et al: Cost-effectiveness of the clinical practice recommendations in the AHCPR guideline for smoking cessation. Agency for Health Care and Policy Research. JAMA 1997;278(21):1759-1766.

McPhillips-Tangum C, Bocchino C, Carreon R, et al: Addressing tobacco in managed care: Results of the 2002 survey. Prev Chronics Dis 2004;1(4):A04.

State Medicaid coverage for tobacco-dependence treatments—United States, 2005. MMWR 2006;55(44):1194-1197.

Theobald M, Jaen CR: An update on tobacco cessation reimbursement. Fam Pract Manag 2006;13(5):75-76, 78.

Petersen R, Garrett JM, Melvin CL, et al: Medicaid reimbursement for prenatal smoking intervention influences quitting and cessation. Tob Control 2006;15(1):30-34.

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(Last Reviewed: January 2008)

44. True statements regarding physical activity in children include which of the following? (Mark all that are true.)

○ **Children who are influenced to watch less television tend to be more active and are less likely to be obese**

○ **Both African-American and white females show significant declines in physical activity in adolescence**

○ Boys and girls have similar reasons for exercising, so a program that gets one gender to increase activity will work for both

○ **The physical activity level of children in relation to their peers is in place by 3 years of age for most children**

Critique:

Physical activity levels of children are important to health and to avoiding obesity across the lifespan. While it may not be possible to determine to what extent activity levels are taught rather than inherent, it is clear that physical activity of children in relation to their peers is largely determined by 3 years of age (level of evidence 2).

There is evidence that in children ages 8–10 years, television watching and activity levels are inversely correlated, as are activity levels and obesity. When children are induced to significantly reduce television watching, activity increases and BMI decreases (level of evidence 1).

In adolescence, both boys and girls tend to reduce physical activity levels, but this is much more pronounced in girls. Both African-American and white females typically have signficant declines in physical activity in adolescence (level of evidence 2). Girls and boys often perceive different benefits of physical activity. Boys are drawn to the benefits of competition and strength building, whereas girls are more likely to value the weight loss and participation associated with activity (level of evidence 3). Girls are likely to have lower self-confidence than boys about physical activity, so programs should be more supportive and foster skill development, rather than emphasizing competition (level of evidence 3).

References:

Kimm SY, Glynn NW, Kriska AM, et al: Decline in physical activity in black girls and white girls during adolescence. N Engl J Med 2002;347(10):709-715.

Robinson TN: Reducing children's television viewing to prevent obesity: A randomized controlled trial. JAMA 1999;282(16):1561-1567.

US Dept of Health and Human Services: Healthy People 2010, ed 2.

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45. A 20-year-old male is brought to your office by friends a few hours after attending a rave party. His friends report that he has been combative and confused, and that he keeps clenching his jaw. Examination reveals a temperature of 38.2°C (100.8°F), a blood pressure of 160/94 mm Hg, and a heart rate of 108 beats/min. He has a mildly ataxic gait.

Which one of the following club drugs is the most likely cause of these findings?

A) MDMA (3,4-methylenedioxymethamphetamine)

B) Flunitrazepam (Rohypnol)

C) GHB (γ-hydroxybutyrate)

D) Ketamine

E) Hashish

Critique:

MDMA (ecstasy), flunitrazepam, GHB, and ketamine are among the drugs used by teens and young adults who are part of a nightclub, bar, rave, or "trance" scene. Raves and trance events are generally nightlong dances, often held in warehouses. Many who attend these dances use club drugs in an effort to enhance the rave or trance experience.

MDMA is a synthetic, psychoactive drug that is chemically similar to the stimulant methamphetamine and the hallucinogen mescaline. Street names for MDMA include *ecstasy*, *XTC*, and *hug drug*. It is taken as a pill.

MDMA abusers might feel very alert or energetic at first. At raves, they can dance for hours at a time. They may also experience distortions in time and other changes in perception. Some, however, can become anxious and agitated. Sweating or chills may occur, and MDMA abusers may feel faint or dizzy. MDMA can interfere with the body's temperature regulation, which can cause dangerous overheating (hyperthermia). Other effects on the body include muscle tension, clenching of teeth, nausea, blurred vision, fainting, and chills or sweating. MDMA increases heart rate and blood pressure and can cause confusion, depression, sleep problems, intense fear, and anxiety. In regular abusers, some of these side effects can last for days or weeks after taking MDMA.

According to the Monitoring the Future (MTF) survey, NIDA's annual survey of drug use and associated attitudes among the Nation's 8th-, 10th-, and 12th-graders, use of MDMA was reported by 1.4% of 8th graders, 2.8% of 10th graders, and 4.1% of 12th graders in 2006. Approximately 615,000 Americans used MDMA for the first time in 2005. The majority of these new users were 18 or older (65.9%), and among those initiating use between the ages of 12 and 49, the average age was 20.7 years (level of evidence 3).

GHB, flunitrazepam, and ketamine have been referred to as date rape drugs, since they have been used to assist with sexual assault. These drugs can be easily added to flavored drinks without the victim's knowledge. Symptoms of GHB intoxication include relaxation, drowsiness, vision problems, nausea/vomiting, headache, loss of consciousness, loss of reflexes, seizures, coma, and death. Flunitrazepam can cause sleepiness, a sensation of intoxication, visual and gastrointestinal disturbances, urinary retention, and loss of memory about the timespan when the person was under the drug's effects. Ketamine, which can also be snorted or smoked, is associated with a loss of time and identity, feeling out of control, a dream-like sensation, numbness, and increased heart rate and blood pressure.

Hashish can be swallowed or smoked. Intoxication side effects include slowed thinking and reaction time, euphoria, confusion, impaired balance and coordination, cough, and impaired memory and learning.

References:

Commonly abused drugs. National Institute on Drug Abuse, 2007.

Gahlinger PM: Club drugs: MDMA, γ-hydroxybutyrate (GHB), Rohypnol, and ketamine. Am Fam Physician

2004;69(11):2619-2626.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

46. A 42-year-old female sees you for a routine evaluation. She mentions that she has a new sexual partner and would like him to use condoms in order to prevent pregnancy and decrease her STD risk.

Which of the following would be appropriate counseling? (Mark all that are true.)

○ Oil-based lubricants should be used with latex condoms, as water-based lubricants can weaken latex and lead to increased breakage

○ **Natural membrane condoms (also called "natural" or "lambskin" condoms) are not recommended for STD prevention**

○ Failure of the condom to prevent STD transmission or unintended pregnancy is usually due to breakage

○ **Condom use may decrease the risk of HSV-2 transmission from an infected male partner to an uninfected female partner**

○ **Condoms are regulated by the FDA as a medical device and are subject to random testing and sampling for quality**

Critique:

Family physicians can play an important role in the prevention and treatment of STDs. The focus of primary STD prevention should be on helping patients change sexual behaviors that put them at risk for infection. It is recommended that physicians routinely and regularly obtain adequate sexual histories from their patients and address risk reduction.

Client-centered counseling is at the heart of STD counseling (SOR C). This refers to the effective delivery of general risk reduction messages that are specific to and relevant to the individual patient, as well as education on the specific actions (e.g., condom use) that can reduce risk. Condoms are a common choice by patients for reducing STD risk, as well as preventing pregnancy. The physician can help ensure that the patient is educated about the selection and use of condoms.

Oil-based lubricants should be avoided, as they can weaken latex and make breakage more likely (level of evidence 3). Examples of oil-based lubricants include petroleum jelly, mineral oil, massage oil, body lotion, cooking oil, and shortening. The CDC recommends water-based lubricants such as K-Y Jelly, Astroglide, AquaLube, and glycerin. It is important to counsel patients to have adequate lubrication to avoid slippage or tearing of the condom.

There are two types of non-latex condoms on the market. The first is made of polyurethane or other synthetic material, and is equivalent to latex condoms in efficacy for prevention of STD transmission and pregnancy. These can be used by persons who have latex allergies. Natural membrane condoms (also called lambskin condoms) are made from the cecum of lambs and have pores or openings in the material up to 1500 nm in diameter. This represents 10 times the diameter of the human immunodeficiency virus (HIV) and 25 times the diameter of the hepatitis B virus. Thus, natural material condoms are NOT recommended for the prevention of STD transmission. However, this type of condom has an efficacy similar to that of latex for the prevention of pregnancy.

In the United States, the average rate of breakage during sexual intercourse and withdrawal is 2/100. Thus, inconsistent or incorrect use of the condom is by far the most common reason for failure to prevent STD

transmission or pregnancy.

Limited evidence shows that correct and consistent use of the male condom may decrease the risk of transmission of the HSV-2 virus from an infected male to his uninfected female partner. However, subgroup analysis revealed no significant difference in transmission of HSV-2 from an infected woman to her uninfected male partner if a condom was used. There are no systematic reviews or randomized, controlled trials on female condoms and HSV-2 transmission. Male latex condoms are also effective in preventing transmission of HIV and decrease transmission of *Chlamydia*, gonorrhea, and trichomoniasis. They may also reduce the risk that a woman will develop pelvic inflammatory disease, and may reduce the risk of HPV-associated disease.

Condoms are subject to random sampling and testing by the FDA, and each latex condom manufactured in this country is tested electronically by the manufacturer for holes.

References:

Wald A, Langenberg A, Link K, et al: Effect of condoms on reducing the transmission of herpes simplex virus type 2 from men to women. JAMA 2001;285(24):3100-3106.

Workowski KA, Bolan GA: Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1-137.

(Last Modified: December 2012)

(Last Reviewed: December 2012)

47. According to the Task Force on Community Preventive Services convened by the Centers for Disease Control and Prevention, there is sufficient evidence to recommend which of the following public policy initiatives to reduce or prevent tobacco use? (Mark all that are true.)

- **Increasing the unit price of tobacco products**
- **Mass media educational campaigns as part of a comprehensive approach**
- **Smoking bans and restrictions in public places**
- Laws preventing purchase of tobacco by minors

Critique:

Like many elements of public health, tobacco control public policy initiatives have been shown to be integral to success. The Task Force on Community Preventive Services has studied the evidence for tobacco control initiatives, and concluded that several activities have sufficient evidence for a positive recommendation. Tobacco control economists rank price increases as one of the top strategies for reducing the prevalence of use (level of evidence 2). Price increases have been found to have a strong correlation with consumption, called "price elasticity," in a variety of settings. In general, for every 10% price increase, use drops about 4% among adults. Price has an even greater impact on the prevalence of tobacco use in young smokers, with a 10% rise in price leading to a 7% drop in prevalence by some estimates. Other studies have shown a decrease of as much as 15% with a 10% price hike.

Some experts argue that banning smoking in the workplace and other public places is one of the most effective ways to decrease tobacco consumption, with a systematic review showing that a national policy creating smoke-free workplaces could decrease per-capita cigarette consumption in the United States by 4.5%. These experts contend that such programs are as effective as free distribution of nicotine replacement products to smokers.

The combination of initiatives such as tax increases, increased access to cessation services, media campaigns, and clean indoor air initiatives work in synergy to decrease tobacco use (level of evidence 2). Experiences in New York City, California, Massachusetts, and several foreign countries have shown that the combination does reduce smoking prevalence.

Some policy initiatives, however, have less evidence of effectiveness, such as restrictions on the sale of tobacco to minors. This appears to be effective only when the rate of successful purchase by youth within a community is very low, perhaps less than a 20% illegal sales rate. Although some experts argue for its effectiveness as a policy, others think it should be abandoned. The Cochrane systematic review on youth access laws finds limited support for their efficacy, in part because it is so difficult to maintain effectively low sales rates (level of evidence 2).

References:

Fichtenberg CM, Glantz SA: Effect of smoke-free workplaces on smoking behaviour: Systematic review. BMJ 2002;325(7357):188.

Forster JL, Murray DM, Wolfson M, et al: The effects of community policies to reduce youth access to tobacco. Am J Public Health 1998;88(8):1193-1198.

Frieden TR, Mostashari F, Kerker BD, et al: Adult tobacco use levels after intensive tobacco control measures: New York City, 2002-2003. Am J Public Health 2005;95(6):1016-1023.

Koh HK, Judge CM, Robbins H, et al: The first decade of the Massachusetts Tobacco Control Program. Public Health Rep 2005;120(5):482-495.

Ling PM, Landman A, Glantz SA: It is time to abandon youth access tobacco programmes. Tob Control

2002;11(1):3-6.

Ong MK, Glantz SA: Free nicotine replacement therapy programs vs implementing smoke-free workplaces: A cost-effectiveness comparison. Am J Public Health 2005;95(6):969-975.

Stead F, Lancaster T: Interventions for preventing tobacco sales to minors. Cochrane Database Syst Rev

2005;25(1):CD001497.

Task Force on Community Preventive Services: The Guide to Community Preventive Services: What Works to Promote Health? Oxford University Press, 2005, chap 1.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

48. Effects seen to a greater degree with resistance training than with aerobic exercise include which of the following? (Mark all that are true.)

- **Increased lean body mass**
- **Increased basal metabolism**
- Increased maximum oxygen uptake
- Increased cardiac stroke volume
- Decreased resting heart rate

Critique:

Compared to resistance training, aerobic exercise fosters a greater increase in maximum oxygen uptake and associated cardiovascular variables such as a lower resting heart rate. Aerobic exercise is also more effective for modifying cardiovascular risk factors associated with the development of coronary heart disease. Resistance training provides greater development of muscle strength, endurance, and mass, producing a greater increase in lean body mass. Although aerobic exercise is a significant calorie burner, resistance training also assists the body in burning calories by increasing lean body mass and basal metabolic rate. From a physiologic perspective, aerobic exercise imposes primarily a volume load on the myocardium, resulting in a curvilinear increase in stroke volume. Conversely, resistance exercise imposes a pressure load on the myocardium, with stroke volume remaining largely unchanged (level of evidence 3).

References:

Pollock ML, Franklin BA, Balady GJ, et al: AHA Science Advisory. Resistance exercise in individuals with and without cardiovascular disease: Benefits, rationale, safety and prescription. An advisory from the Committee on Exercise,

Rehabilitation, and Prevention, Council on Clinical Cardiology, American Heart Association; Position paper endorsed by the American College of Sports Medicine. Circulation 2000;101(7):828-833.

Williams MA, Haskell WL, Ades PA, et al: Resistance exercise in individuals with and without cardiovascular disease: 2007 update: A scientific statement from the American Heart Association Council on Clinical Cardiology and Council on Nutrition, Physical Activity, and Metabolism. Circulation 2007;116(5):572-584.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

49. Methods shown to be useful smoking cessation interventions include which of the following? (Mark all that are true.)

- **Motivational interviewing**
- **The Stages of Change model**
- **The 5 As**
- Recognizing that behavioral change is often a discrete single event
- Attempting to advance patients in the action stage to the preparation stage

Critique:

Motivational interviewing, the Stages of Change model, and the 5 As (ask, advise, assess, assist, and arrange) are well-established methods for behavior change, regardless of the presenting problem (level of evidence 2). Behavior change is rarely a discrete single event, but is usually a gradual process involving improved realization of the information that is read or heard. Motivational techniques to change behavior attempt to move people in need of motivation (pre-contemplators, contemplators, and patients in preparation) into the action stage of actual behavior change.

References:

Zimmerman GL, Olsen CG, Bosworth MF: A "stages of change" approach to helping patients change behavior. Am Fam Physician 2000;61(5):1409-1416.

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(Last Reviewed: January 2008)

50. A 30-year-old female sees you for an annual examination. She is in good health and has no complaints. She is up to date on all preventive services. The only notable change from 1 year ago is an increase in her BMI from 24.1 kg/m to 27.2 2 kg/m2

The most appropriate management for this patient would be to

A) reassure her that her BMI is still within the normal range for her age

B) recommend regular exercise to avoid further weight gain

C) recommend diet, exercise, and behavior modification

D) recommend diet, exercise, and pharmacotherapy

E) prescribe low-dose pharmacotherapy for weight loss

Critique:

According to NIH clinical guidelines on the identification, evaluation, and treatment of obesity in adults, a patient with a BMI of 25.0–29.9 kg/m^2 is classified as overweight, and the appropriate intervention is diet, exercise, and behavior modification. For a BMI of 30.0–40.0 kg/m^2, medications can be beneficial (SOR A). Orlistat has an indication for use in patients with a BMI >30 kg/m^2, or a BMI >27 kg/m^2 with risk factors, but it should be used only in conjunction with diet and exercise (SOR B). Pharmacotherapy without lifestyle modification actually decreases a person's ability to lose weight (SOR B).

Exercise as the only prescribed therapy can help patients lose modest amounts of weight or aid them in maintaining their current weight (SOR A). This patient needs to lose a significant amount of weight, so exercise alone is unlikely to enable her to meet her goal.

References:

NHLBI Obesity Education Initiative Expert Panel on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults; North American Association for the Study of Obesity Practical Guide Development Committee: Obesity: The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. National Heart, Lung, and Blood Institute, 2000, NIH pub no 00-4084.

Shaw K, Gennat H, O'Rourke P, et al: Exercise for overweight or obesity. Cochrane Database Syst Rev

2006;(4):CD003817.

Shepard TM: Effective management of obesity. J Fam Pract 2003;52(1):34-42.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

51. Foods associated with a reduction in blood pressure include which of the following? (Mark all that are true.)

- **Dark chocolate**
- Licorice
- White chocolate
- Sugar-containing beverages
- **Soybean protein**

Critique:

Daily intake of at least 100 g of polyphenol-rich dark chocolate has been found to be associated with a 3-mm reduction in systolic blood pressure and improved formation of vasodilative nitric oxide (level of evidence 3). In addition, another study found a statistically significant reduction in blood pressure with the consumption of 40 g of soybean protein (level of evidence 3). Licorice has been associated with hypertension in humans. The DASH diet, which has been shown to reduce blood pressure, calls for a diet rich in fruits, vegetables, and low-fat dairy products, and a reduced content of dietary cholesterol, saturated and total fat, sweets, and sugar-containing beverages (level of evidence 3).

References:

Chobanian AV, Bakris GL, Black HR, et al: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure-The JNC 7 Report. National Heart Lung and Blood Institute (NHLBI), 2003.

Taubert D, Roesen R, Lehmann C, et al: Effects of low habitual cocoa intake on blood pressure and bioactive nitric oxide: A randomized controlled trial. JAMA 2007;298(1):49-60.

Whelton PK, He J, Appel LJ, et al: Primary prevention of hypertension: Clinical and public health advisory from the National High Blood Pressure Education Program. JAMA 2002;288(15):1882-1888.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

52. In obese patients, which of the following comorbidities require aggressive management because of the associated increased risk for mortality? (Mark all that are true.)

- **Previous coronary artery stenting**
- **Peripheral vascular disease**
- **Type 2 diabetes mellitus**
- **Sleep apnea**
- Gallstones

Critique:

Certain obesity-related conditions place patients at very high risk for subsequent mortality. Patients with these conditions require more aggressive disease management and risk factor modifications. These conditions include established coronary artery disease (previous MI, angina, previous cardiac procedures such as stents), peripheral vascular disease, abdominal aortic aneurysm, carotid artery disease, type 2 diabetes mellitus, and sleep apnea. Other obesity-associated diseases are less lethal, such as gallstones and osteoarthritis.

Patients with three or more cardiovascular risk factors are considered to be at high absolute risk. These risk factors include smoking, hypertension, increased LDL-cholesterol, decreased HDL-cholesterol, impaired fasting glucose, a family history of premature cardiac disease, and age >45 in men or >55 (or postmenopausal) in women (SOR C).

References:

NHLBI Obesity Education Initiative Expert Panel on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults; North American Association for the Study of Obesity Practical Guide Development Committee: Obesity: The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. National Heart, Lung, and Blood Institute, 2000, NIH pub no 00-4084.

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(Last Reviewed: January 2008)

53. Which one of the following is true regarding secondhand smoke exposure?

A) Cancer is the main cause of deaths due to secondhand smoke in nonsmokers

B) Secondhand smoke causes most new cases of asthma among adults

C) Secondhand smoke has not been designated a class A, or known, carcinogen

D) Secondhand smoke is a frequent cause of lower respiratory illness among children

Critique:

Secondhand smoke (SHS, also known as environmental tobacco smoke) is a complex mixture of chemicals from the burning tip of the cigarette or cigar, and exhaled smoke. Many of these chemicals have higher concentrations in SHS than in inhaled smoke, because the combustion from the lit end of a cigarette is less complete, producing a "dirtier" smoke than the smoke that is inhaled. As with inhaled smoke, SHS has been declared a class A, or known human, carcinogen by the U.S. Environmental Protection Agency, the National Toxicology Project, the International Agency for Research on Cancer (an arm of the World Health Organization), the U.S. Surgeon General, the AMA, and a host of other reputable organizations.

Chronic exposure to SHS among adults increases the risk of lung cancer by 20%–30%, with exposure at home or work raising the risk about equally (level of evidence 2). Exposure in both environments brings even higher risk. It is estimated that about 3500 deaths from lung cancer each year are caused by SHS. More than 50 known carcinogens are present in SHS.

Heart disease is the leading cause of preventable death from SHS exposure with between 22,000 and 69,000 cardiac deaths each year attributable to SHS (level of evidence 2). Like direct smoking, SHS induces platelet aggregation, damages arterial endothelial function, raises CO levels, and causes other cardiac injury. The CDC has issued a statement warning persons with known heart disease to avoid venues in which they could be exposed to SHS.

In young children, SHS causes the new onset of asthma, flare-ups of existing asthma, middle ear disease, bronchitis, pneumonia, cough, and SIDS. SHS also retards pulmonary development (level of evidence 2).

Among adults, SHS has not traditionally been considered to cause new-onset asthma, and the 2006 Surgeon General's Report calls this relationship "suggestive" but not causal. However, the California Air Resources Board, part of the California EPA, lists adult asthma induction as one of the health consequences of SHS exposure in adolescents and adults in its 2006 report on SHS.

References:

Rulemaking to consider proposed identification of tobacco smoke as toxic air contaminant (January 26, 2006).

California Air Resources Board, 2006–2007.

The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General. US Dept of Health and Human Services, Office on Smoking and Health, 2006.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

54. Factors associated with adolescent tobacco use include which of the following? (Mark all that are true.)

- **Socioeconomic status**
- **Parental smoking**
- **Prices of tobacco products**
- **Viewing movies in which actors smoke**
- **Maternal smoking during pregnancy**

Critique:

Factors associated with adolescent tobacco use include low socioeconomic status, use of tobacco by peers and siblings, smoking by parents or guardians, accessibility, availability and prices of tobacco products, a perception that tobacco use is normal, lack of parental support or involvement, low levels of academic achievement, lack of skills to resist influences contributing to tobacco use, low self-esteem or self-image, a belief that tobacco use is beneficial, and an inability to refuse offers of tobacco (level of evidence 3).

Ethnicity also affects the likelihood of smoking. Mexican adolescents in the United States are more likely to smoke than either non-Hispanic whites or non-Hispanic African-Americans. Adolescents from Cuban, Indian (Asian), Chinese, or Vietnamese backgrounds are even less likely to smoke. Male and female adolescents appear to be equally likely to smoke in all subpopulations.

Additional factors that increase adolescent tobacco use include tobacco marketing practices in retail stores and viewing movies in which actors smoke. Maternal smoking during pregnancy also increases the likelihood that a child will smoke (level of evidence 2).

Tobacco use in adolescence is also associated with many other risk behaviors, including high-risk sexual behaviors and drug and alcohol use.

References:

Buka SL, Shenassa ED, Niaura R: Elevated risk of tobacco dependence among offspring of mothers who smoked during pregnancy: A 30-year prospective study. Am J Psychiatry 2003;160(11):1978-1984.

Racial/ethnic differences among youths in cigarette smoking and susceptibility to start smoking—United States, 2002-2004. MMWR 2006;55(47):1275-1277.

Slater SJ, Chaloupka FJ, Wakefield M, et al: The impact of retail cigarette marketing practices on youth smoking uptake. Arch Pediatr Adolesc Med 2007;161(5):440-445.

Primack BA, Longacre MR, Beach ML, et al: Association of established smoking among adolescents with timing of exposure to smoking depicted in movies. J Natl Cancer Inst 2012;104(7):549-555.

CDC: Fact Sheets: Youth and Tobacco Use, 2016.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

55. Criteria for recommending bariatric bypass surgery include which of the following? (Mark all that are true.)

○ **A BMI >40 kg/m2**

○ **The presence of obesity-related comorbidities such as hypertension, diabetes mellitus, or obstructive sleep apnea**

○ **Psychological stability**

○ The presence of an eating disorder

○ **Repeated attempts to lose weight by diet, exercise, and/or weight loss drugs only to eventually gain the weight back**

Critique:

The American College of Physicians recommends bariatric surgery for individuals with a BMI >40 kg/m^2 and obesity-related comorbidities who have been unable to lose weight with exercise, diet, and/or weight loss drugs (SOR B). Psychological evaluation is frequently recommended by practicing physicians, since adjustments to weight loss and the new lifestyle can be challenging. Individuals with eating disorders have habitual maladaptive eating patterns that would be detrimental during recovery from bariatric bypass surgery.

References:

Arbaje AI: Determining eligibility for gastric bypass surgery. Am Fam Physician 2006;73(9):1638, 1643.

Choban PS, Jackson B, Poplawski S, et al: Bariatric surgery for morbid obesity: Why, who, when, how, where, and then what? Cleve Clin J Med 2002;69(11):897-903.

Snow V, Barry P, Fitterman N, et al: Pharmacologic and surgical management of obesity in primary care: A clinical practice guideline from the American College of Physicians. Ann Intern Med 2005;142(7):525-531.

Neff KJ, Olbers T, le Roux CW: Bariatric surgery: The challenges with candidate selection, individualizing treatment and clinical outcomes. BMC Med 2013;11:8.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

56. American Heart Association recommendations for child nutrition include which of the following? (Mark all that are true.)

- ○ **Remove the skin from poultry before serving**
- ○ **Serve whole-grain breads with whole grain listed as the first ingredient on the food label**
- ○ **Serve high-fiber, low-salt, low-sugar breads and breakfast cereals**
- ○ **Introduce and regularly serve fish**
- ○ **Serve fresh, frozen, and canned vegetables and fruits at every meal, being careful of added sugars**

Critique:

For optimal cardiovascular nutrition for children and adolescents, the American Heart Association recommends a diet relying primarily on fruits, vegetables, whole grains, low-fat and nonfat dairy products, beans, fish, and lean meat (SOR C). Vegetables and fruits should be served at every meal, and breads and cereals should be high in fiber and low in sugar. Whole grain should be the major ingredient of breads. Skin should be removed from poultry before serving, and fish should be introduced into the diet and served regularly.

References:

American Heart Association, Gidding SS, Dennison BA, et al: Dietary recommendations for children and adolescents: A guide for practitioners. Pediatrics 2006;117(2):544-559.

Ogata BN, Hayes D: Position of the American Dietetic Association: Nutrition guidance for healthy children ages 2 to 11 years. J Acad Nutr Diet 2014;114(8):1257-1276.

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57. An 11-year-old girl presents with recurring headaches and abdominal pain. A workup for her complaints is negative. She lives with her mother and her mother's boyfriend. She reports that her mother's boyfriend drinks too much and frequently hits her mother. They live in a rural area where a large factory recently closed, leaving many unemployed. On examination, she has no evidence of physical or sexual abuse, but with further questioning she admits to being touched inappropriately by her mother's partner.

Factors which place her at higher risk for sexual abuse include which of the following? (Mark all that are true.)

- **Her gender**
- **Her age**
- **Living with a non-related caretaker**
- **A caregiver with substance abuse problems**
- **High local unemployment rates**

Critique:

Child abuse is common in the United States and should be considered when there is apparent neglect of a child or sexual, emotional, or physical abuse (SOR C). Specifically, child sexual abuse is defined by the Child Abuse Prevention and Treatment Act as "the employment, use, persuasion, inducement, enticement, or coercion of any child to engage in, or assist any other person to engage in, any sexually explicit conduct or simulation of such conduct for the purpose of producing a visual depiction of such conduct; or the rape, molestation, prostitution, or other form of sexual exploitation of children, or incest with children."

Most cases of child sexual abuse are not reported, and less than 10% of child sexual abuse cases that are substantiated are associated with physical signs of abuse on examination. This figure highlights the great importance of careful history taking and a high index of suspicion if risk factors are present.

There is an association between child sexual abuse and various disorders, including posttraumatic stress disorder, depression, eating disorders, alcohol and other substance abuse disorders, antisocial and suicidal behaviors, sexual revictimization, and sexual dysfunction. However, the studies supporting these associations are retrospective and it is unclear whether the history of abuse or other psychosocial factors are causative (level of evidence 3).

Risk factors for child sexual abuse include female gender, parental alcoholism or substance abuse, intimate partner violence (domestic violence), and poor parental attachment. Girls are much more likely to experience child sexual abuse. If a girl is socially isolated, this doubles her risk of abuse.

The most at-risk age group for child sexual abuse is pre-adolescent children in the age range of 10–12 years. There is a second smaller peak of abuse reported in the 6- to 7-year-old age range. Other factors that place a child at increased risk of abuse or neglect include a history of prematurity, behavioral problems, medical fragility, and other special needs.

The presence of a caretaker in the home who has no biological relationship to the child increases the risk for abuse

(sexual, emotional, and physical) as well as neglect. Most perpetrators are known to the child. Other caregiver risk factors for abuse and neglect include a past criminal history, a past history of mental health problems, misconceptions about child care and child development, and inappropriate expectations of the child. A caregiver with a substance abuse problem increases the risk for child sexual abuse and maltreatment.

There are various family and environmental factors that make child sexual abuse and other forms of abuse and neglect more common. These include high local unemployment levels, intimate partner violence in the same home as the child, social isolation, and poverty.

References:

McDonald KC: Child abuse: Approach and management. Am Fam Physician 2007;75(2):221-228.

Walsh K, Zwi K, Woolfenden S, Shlonsky A: School-based education programmes for the prevention of child sexual abuse. Cochrane Database Syst Rev 2015;(4):CD004380.

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58. A 44-year-old male who stopped smoking 3 months ago sees you for a follow-up visit. He began smoking again over the weekend, smoking 10 cigarettes over 2 days.

Which of the following would be appropriate strategies to counter his relapse? (Mark all that are true.)

- **Encouraging the patient to identify his smoking cues and triggers and decide on alternative coping strategies to replace smoking**
- **Counseling the patient on the proper use of pharmacotherapy**
- **Scheduling a follow-up visit**
- **Reviewing the health benefits of quitting**
- Telling the patient that he has let his family down by resuming smoking

Critique:

It is important that the smoker not focus on blaming himself for relapsing, since negative emotions only encourage further relapses. On average most smokers attempt to quit smoking 4–5 times before cessation is successful. Anywhere from 6%–38% of smokers who relapse will attempt to quit again within the next year. Maintaining contact with the smoker and being positive about the likelihood of quitting are powerful contributors to permanent abstinence.

The physician should focus on helping the patient identify smoking triggers and helping to develop strategies to cope with them (SOR B). This may include pharmacologic agents (SOR A).

References:

Okuyemi KS, Nollen NL, Ahluwalia JS: Interventions to facilitate smoking cessation. Am Fam Physician 2006;74(2):262-271, 276.

(Last Modified: January 2008)

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59. A 52-year-old sees you for a routine annual visit. On examination her heart rate is 82 beats/min, her respiratory rate is 16/min, and her blood pressure is 150/90 mm Hg. Her body mass index (BMI) is 30.1 kg/m2, and she has a waist circumference of 102 cm (40 in). Laboratory screening reveals an LDL-cholesterol level of 190 mg/dL, a fasting glucose level of 98 mg/dL, and a 2-hour blood glucose level of 160 mg/dL on an oral glucose tolerance test.

When counseling this patient regarding weight loss, which of the following would be accurate advice? (Mark all that are true.)

- **Losing just 10 kg (22 lb) could eliminate her need for antihypertensive medications**
- Losing 10 kg would lower her LDL-cholesterol level by about 20 mg/dL
- **Reducing her body weight by 5%–10% would reduce her risk of developing type 2 diabetes**
- She does not really need to lose weight because it is mostly in her abdominal area

Critique:

There is substantial evidence that a weight loss of 10 kg confers numerous health benefits, including a reduction of up to 20 mm Hg in systolic blood pressure (SOR A). LDL-cholesterol levels have been estimated to decrease by 1% for every kg lost (SOR C). A weight reduction of at least 5 kg seems to be required to result in meaningful improvement in glycemic control (SOR C).

Abdominal obesity is an independent risk factor for increased cardiovascular risk (SOR B). While weight loss certainly has numerous health benefits, sudden or substantial weight loss can put patients at increased risk of gallstones and hip fracture, particularly in white females (SOR C). In a Finnish study of 522 middle-aged men with impaired glucose tolerance, intensive individualized instruction on weight reduction, food intake, and increasing physical activity resulted in a 58% reduction in the incidence of diabetes mellitus compared to the control group. In this study, weight reduction of as little as 5%–10% was found to lower the risk of developing diabetes.

References:

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Final Recommendation Statement: Weight Loss to Prevent Obesity-Related Morbidity and Mortality in Adults: Behavioral Interventions. US Preventive Services Task Force, 2018.

(Last Modified: January 2008)

(Last Reviewed: January 2008)

60. True statements regarding dietary counseling programs for weight loss include which of the following? (Mark all that are true.)

- They typically result in a weight loss of 10%
- **Their effect on weight loss tends to diminish over time**
- Their effect on weight loss is greater in patients with diabetes mellitus
- **Having frequently scheduled support meetings increases the amount of weight lost**
- **Patients with a BMI ≥30 kg/m2 have been shown to benefit from intensive, multi-component behavioral interventions**

Critique:

Randomized, controlled trials comparing dietary counseling programs with usual care have generally demonstrated a mean net treatment effect of 2 BMI units of weight loss, or 6% of initial body weight, at 1 year (level of evidence 3). Approximately half of the initial weight loss was typically regained after 3 years. The net treatment effect of dietary counseling appears to be less in patients with type 2 diabetes mellitus and greater in programs with more frequent scheduled support meetings. Intensive, multi-component behavioral interventions have been found to lead to weight loss, as well as improvement in glucose tolerance and other cardiovascular risk factors in obese adults. The U.S. Preventive Services Task Force recommends that clinicians offer these services for their obese patients, or refer them as appropriate. Interventions should include behavior management activities for improving diet and increasing physical activity, addressing barriers to change, self-monitoring, and developing strategies to maintain lifestyle changes.

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