

# American Board of Family Medicine

## Knowledge Self-Assessment Questions: Care of Older Adults

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. An 86-year-old female reports dizziness that has progressively worsened over the past several months. She describes a feeling of unsteadiness when standing or walking, and says that she is afraid this will cause her to fall. She cannot identify any triggers for her symptoms. Her medical history is significant for glaucoma, chronic hearing loss, hyperlipidemia, and coronary artery disease.

On examination her blood pressure is 130/80 mm Hg with no orthostatic changes. Her visual acuity with glasses is 20/30 on the right and 20/50 on the left. She has decreased high-frequency hearing in both ears. Her eye movements are normal. She is slightly unsteady when standing up from sitting and when walking across the room. Routine laboratory testing is unremarkable.

Appropriate treatment for this patient would include which one of the following?

- A) Epley maneuvers (canalith repositioning)
- B) Vestibular and balance exercises
- C) Meclizine (Antivert) as needed for dizziness
- D) Triamterene/hydrochlorothiazide
- E) Referral for an endolymphatic shunt

Post RE, Dickerson LM: Dizziness: A diagnostic approach. *Am Fam Physician* 2010;82(4):361-368, 369.

Muncie HL, Sirmans SM, James E: Dizziness: Approach to evaluation and management. *Am Fam Physician* 2017;95(3):154-162.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

2. A 64-year-old male develops atrial fibrillation. He has no previous history of hypertension or diabetes mellitus and has no structural heart disease. His only chronic condition is hyperlipidemia, which is controlled with a statin.

Which one of the following would be recommended for the prevention of stroke in this patient?

- A) Apixaban (Eliquis)
- B) Aspirin
- C) Aspirin/dipyridamole (Aggrenox)
- D) Clopidogrel (Plavix)
- E) Warfarin

Gutierrez C, Blanchard DG: Diagnosis and treatment of atrial fibrillation. *Am Fam Physician* 2016;94(6):442-452.

January CT, Wann LS, Calkins H, et al: 2019 AHA/ACC/HRS focused update of the 2014 AHA/ACC/HRS guideline for the management of patients with atrial fibrillation: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. *J Am Coll Cardiol* 2019;74(1):104-132.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

3. A 78-year-old female has experienced decreased memory over a period of several years. She has no reported

behavioral problems. Her Montreal Cognitive Assessment (MoCA) score is 17. She frequently has problems generating the word she wants and she sometimes does not recognize her grandchildren. Her family is considering assisted care options, as she is beginning to have difficulties with some instrumental activities of daily living and some activities of daily living. You have ruled out reversible causes of dementia.

Which one of the following has NOT been shown to be effective for treatment of cognitive or functional symptoms such as this, either alone or as add-on therapy?

- A) Donepezil (Aricept)
- B) Galantamine
- C) Memantine (Namenda)
- D) Risperidone (Risperdal)
- E) Vitamin E

Farina N, Llewellyn D, Isaac MGEKN, Tabet N: Vitamin E for Alzheimer's dementia and mild cognitive impairment. *Cochrane Database Syst Rev* 2017;4(4):CD002854.

Saguil A, Buck E: Brief cognitive testing in the detection and diagnosis of clinical Alzheimer-type dementia. *Am Fam Physician* 2021;103(3):183-185.

Rey JB, Kalish VB: Pharmacologic interventions for apathy in patients with Alzheimer disease. *Am Fam Physician* 2019;99(1):14-15.

Epperly T, Dunay MA, Boice JL: Alzheimer disease: Pharmacologic and nonpharmacologic therapies for cognitive and functional symptoms. *Am Fam Physician* 2017;95(12):771-778.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

4. An 80-year-old male with gradually increasing cough and dyspnea on exertion has been diagnosed with metastatic lung cancer. He has declined curative treatment and agrees to enter hospice care.

Which one of the following statements about hospice care is true?

- A) The Medicare hospice benefit pays for nursing home room and board
- B) All medications being taken at the time of hospice enrollment are covered by the Medicare hospice benefit
- C) If a patient lives longer than 6 months after hospice enrollment the Medicare hospice benefit expires
- D) Bereavement services for the family and caregivers expire 6 months after the patient's death
- E) Hospice facilities are subject to both state and federal evaluation

CaringInfo: Hospice care. National Hospice and Palliative Care Organization, accessed 2021.

Centers for Medicare and Medicaid Services: *Medicare Benefit Policy Manual*. US Dept of Health and Human Services, pub 100-02, chap 9.

Centers for Medicare & Medicaid Services: Medicare hospice benefits. US Department of Health and Human Services, revised 2019.

Medicare.gov: Hospice care. US Centers for Medicare and Medicaid Services, accessed 2021.

CMS.gov: Hospice. US Centers for Medicare and Medicaid Services, 2021.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

5. A 69-year-old male sees you for a follow-up visit 1 month after having a middle cerebral artery stroke. He has made a good recovery and has quit smoking since his stroke. He has controlled hypertension treated with lisinopril (Prinivil, Zestril). He is now taking aspirin, 81 mg daily, and clopidogrel (Plavix), 75 mg daily. A lipid panel reveals a total cholesterol level of 190 mg/dL, an LDL-cholesterol level of 140 mg/dL, and a triglyceride level of 280 mg/dL.

Which one of the following should be added to the patient's medication regimen?

- A) Atorvastatin (Lipitor), 80 mg daily
- B) Ezetimibe (Zetia), 10 mg daily

- C) Fenofibrate (Tricor), 145 mg daily
- D) Pravastatin (Pravachol), 40 mg daily

Kernan WN, Ovbiagele B, Black HR, et al; American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, and Council on Peripheral Vascular Disease: Guidelines for the prevention of stroke in patients with stroke and transient ischemic attack: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2014;45(7):2160-2236.  
Grundy SM, Stone NJ, Bailey AL, et al: 2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA guideline on the management of blood cholesterol: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation* 2019;139(25):e1082-e1143.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

6. An 82-year-old male has nonradicular back pain due to metastatic prostate cancer. He has declined treatment for the cancer and seeks your help with pain management.

Which one of the following treatments is LEAST effective for managing pain due to bony metastases?

- A) Bisphosphonates
- B) Corticosteroids
- C) Monoclonal antibodies
- D) NSAIDs
- E) Opioids

WHO Guidelines for the Pharmacological and Radiotherapeutic Management of Cancer Pain in Adults and Adolescents. World Health Organization, 2018.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

7. A 65-year-old female is found to have a compression fracture of her thoracic spine. A DXA scan reveals a T-score of  $-2.6$  at the spine and  $-2.8$  at the hip.

Which one of the following would be most effective for reducing the likelihood of fractures of the patient's hip and spine?

- A) Alendronate (Fosamax)
- B) Calcitonin
- C) Calcium
- D) Raloxifene (Evista)
- E) Vitamin D

Jeremiah MP, Unwin BK, Greenawald MH, Casiano VE: Diagnosis and management of osteoporosis. *Am Fam Physician* 2015;92(4):261-268.

Lindsay A: Fracture prevention in older adults. *Am Fam Physician* 2020;101(6):370-372.

Vitamin D, calcium, or combined supplementation for the primary prevention of fractures in community-dwelling older adults: Recommendation statement. *Am Fam Physician* 2018;98(4):Online.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

8. An 82-year-old right hand-dominant female with no history of dementia had a stroke recently that caused right hemiparesis and aphasia. She is receiving speech and language therapy.

Which one of the following medications would most likely be of benefit in treating her aphasia?

- A) Donepezil (Aricept)
- B) Galantamine
- C) Haloperidol
- D) Propranolol

Stanley B, Siever LJ: The interpersonal dimension of borderline personality disorder: Toward a neuropeptide model. *Am J Psychiatry* 2009;167(1):24-39.

Zhang X, Shu B, Zhang D, et al: The efficacy and safety of pharmacological treatments for post-stroke aphasia. *CNS Neurol Disord Drug Targets* 2018;17(7):509-521.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

9. You are asked to see an 82-year-old female nursing home resident with severe dementia who has recently developed a pressure injury over her coccyx. On examination you note a shallow, open, non-draining ulcer 3 cm in diameter, shown below.

Which one of the following would NOT be appropriate in this scenario?

- 
- A) Cleansing with normal saline
  - B) Cleansing with hydrogen peroxide
  - C) Repositioning
  - D) Using a hydrocolloid dressing
  - E) Applying moistened gauze

Raetz JG, Wick KH: Common questions about pressure ulcers. *Am Fam Physician* 2015;92(10):888-894.

Edsberg LE, Black JM, Goldberg M, et al: Revised national pressure ulcer advisory panel pressure injury staging system: Revised pressure injury staging system. *J Wound Ostomy Continence Nurs* 2016;43(6):585-597.

Bowers S, Franco E: Chronic wounds: Evaluation and management. *Am Fam Physician* 2020;101(3):159-166.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

10. A 78-year-old male is admitted to the hospital in septic shock from urosepsis. His chronic medical problems include hypertension, benign prostatic hyperplasia, stage 1 chronic kidney disease, and COPD. He has previously expressed his desire for full resuscitation.

Which one of the following treatment options would be most appropriate at this time?

- A) Intravenous antibiotics started after the pathogen has been identified
- B) Hydrocortisone, 400–500 mg daily for 7 days
- C) A fluid challenge of 30 mL/kg of crystalloids
- D) Low-dose dopamine for renal protection
- E) Bicarbonate therapy to improve hemodynamics if the pH is >7.15 (N 7.35–7.45)

Levy MM, Evans LE, Rhodes A: The Surviving Sepsis Campaign bundle: 2018 update. *Crit Care Med* 2018;46(6):997-1000.

Rhodes A, Evans LE, Alhazzani W, et al: Surviving Sepsis Campaign: International guidelines for management of sepsis and septic shock: 2016. *Crit Care Med* 2017;45(3):486-552.

Annane D, Bellissant E, Bollaert PE, et al: Corticosteroids for treating sepsis. *Cochrane Database Syst Rev* 2015;(12):CD002243.

(Last Modified: January 2022)

11. A 70-year-old female asks about dietary interventions or supplements to prevent stroke because her mother had a stroke at age 70. Her blood pressure is normal and she currently takes no medications.

Which one of the following would you advise to specifically address this issue?

- A) Folic acid supplementation
- B) Vitamin B<sub>6</sub> supplementation
- C) Vitamin E supplementation
- D) A ketogenic diet
- E) A Mediterranean diet

Albert CM, Cook NR, Gaziano JM, et al: Effect of folic acid and B vitamins on risk of cardiovascular events and total mortality among women at high risk for cardiovascular disease: A randomized trial. *JAMA* 2008;299(17):2027-2036.

Schürks M, Glynn RJ, Rist PM, et al: Effects of vitamin E on stroke subtypes: Meta-analysis of randomised controlled trials. *BMJ* 2010;341:c5702.

Meschia JF, Bushnell C, Boden-Albala B, et al; American Heart Association Stroke Council; Council on Cardiovascular and Stroke Nursing; Council on Clinical Cardiology; Council on Functional Genomics and Translational Biology; Council on Hypertension: Guidelines for the primary prevention of stroke: A statement for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2014;45(12):3754-3832.

Kim J, Choi J, Kwon SY, et al: Association of multivitamin and mineral supplementation and risk of cardiovascular disease: A systematic review and meta-analysis. *Circ Cardiovasc Qual Outcomes* 2018;11(7):e004224.

Martínez-González MA, Gea A, Ruiz-Canela M: The Mediterranean diet and cardiovascular health. *Circ Res* 2019;124(5):779-798.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

12. You see a 73-year-old male for the first time. During the history he describes a chronic cough and reports that he has received acute outpatient treatment for an exacerbation of the cough once a year on average. He is currently not experiencing an exacerbation. He does not take any maintenance medications for this condition. He has a 50-pack-year smoking history and currently smokes ½ pack of cigarettes a day. His FEV<sub>1</sub> is 60% of predicted, and his FEV<sub>1</sub>/FVC ratio is 60%. His oxygen saturation is 92% on room air. He had low-dose CT to screen for lung cancer 8 months ago with negative findings.

You counsel the patient about smoking cessation. Which one of the following treatment options to help prevent exacerbations would be LEAST appropriate for this patient?

- A) Short-acting bronchodilators as needed for relief of symptoms
- B) Inhaled corticosteroid monotherapy on a scheduled basis
- C) Long-acting β-agonists on a scheduled basis
- D) Long-acting antimuscarinic agents on a scheduled basis

*Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease (2021 Report)*. Global Initiative for Chronic Obstructive Lung Disease, 2021.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

13. A 75-year-old female presents with increasing abdominal pain over the last 6 hours. She had noticed looser stools yesterday. Her past history includes well controlled hypertension and hypercholesterolemia treated with lisinopril/hydrochlorothiazide (Zestoretic) and simvastatin (Zocor). Her past surgical history is unremarkable and she is current on screenings for breast and colon cancer. She is afebrile, her blood pressure is 150/80 mm Hg, and her pulse rate is 100 beats/min. On examination she is visibly uncomfortable and reports severe pain. Bowel sounds are present, and there is diffuse but minimal tenderness on abdominal palpation. The remainder of the examination is

unremarkable.

Which one of the following is the preferred imaging study in this scenario?

- A) Plain abdominal radiographs
- B) Abdominal ultrasonography
- C) CT angiography
- D) Catheter-directed angiography
- E) Magnetic resonance angiography

Bala M, Kashuk J, Moore EE, et al: Acute mesenteric ischemia: Guidelines of the World Society of Emergency Surgery. *World J Emerg Surg* 2017;12:38.

Monita MM, Gonzalez L: Acute mesenteric ischemia. StatPearls Publishing, 2021.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

14. Following a stroke, a 77-year-old female has persistent right leg weakness and intact arm strength. Which one of the following is true in this situation?

- A) A four-wheeled walker should be used initially in the rehabilitation process
- B) A motorized scooter would be preferable to a wheelchair if she is unable to safely use a walker
- C) If it is determined that a long-term orthosis is needed, it should be custom fitted
- D) Use of an orthosis may eliminate the need for further functional exercises

Winstein CJ, Stein J, Arena R, et al; American Heart Association Stroke Council; Council on Cardiovascular and Stroke Nursing; Council on Clinical Cardiology; Council on Quality of Care and Outcomes Research: Guidelines for adult stroke rehabilitation and recovery: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2016;47(6):e98-e169.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

15. An 86-year-old female is brought to your office by her daughter because the mother has developed a large breast mass. The mass is not causing any pain. The patient's medical history is significant for hypothyroidism. Her only medication is levothyroxine (Synthroid) and her TSH level was normal 3 months ago. A mammogram and biopsy indicate that the mass is malignant.

The patient lives independently in a senior apartment complex where she receives regular meals and home cleaning. Her daughter assists her with her finances. The daughter wants the patient to investigate treatment options but the patient refuses, saying, "I'm old and I don't care if I die."

Which one of the following is NOT a factor when assessing this patient's ability to make her own decisions?

- A) The ability to express a choice clearly
- B) The ability to understand the benefits and risks of treatment options
- C) The ability to say how the procedure would affect her condition
- D) Refusal of treatment with a high probability of success
- E) The presence or absence of depression

Barstow C, Shahan B, Roberts M: Evaluating medical decision-making capacity in practice. *Am Fam Physician* 2018;98(1):40-46.

(Last Modified: January 2022)

16. A 77-year-old female with severe Alzheimer's disease has been losing weight gradually over the past 2 months due to poor oral intake. She has been noncommunicative for 3 years. Family and nursing assistance does not significantly improve her food intake, and the family asks whether a feeding tube is indicated.

Which one of the following is accurate regarding the use of feeding tubes in patients with advanced dementia?

- A) They improve nutritional status compared with hand feeding
- B) They decrease the risk of aspiration pneumonia
- C) They help these patients live longer
- D) They decrease the risk of pressure injuries
- E) They are not recommended in patients with advanced dementia

American Geriatrics Society Ethics Committee and Clinical Practice and Models of Care Committee: American Geriatrics Society feeding tubes in advanced dementia position statement. *J Am Geriatr Soc* 2014;62(8):1590-1593.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

17. A 78-year-old female who is on warfarin presents for follow-up after missing several appointments. On examination she has new bruises on her neck and ears. She reports that she often forgets whether she took her warfarin, and sometimes takes a dose later than her usual time in case she forgot. You ask her about her safety at home with her caregiver, and she says she has not been mistreated.

Which one of the following statements regarding this situation is true?

- A) Physical abuse is the most common type of elder mistreatment
- B) The location of the bruises on this patient is very suspicious for physical abuse
- C) Elder mistreatment reports have recently leveled off
- D) Most reports of elder mistreatment come from physicians and health care providers
- E) Approximately half of elder mistreatment cases are unreported

Mosqueda L, Burnight K, Liao S: Bruising in the geriatric population. US Dept of Justice, 2006.

Research, statistics, and data. National Center on Elder Abuse, accessed 2021.

Lachs MS, Pillemer KA: Elder abuse. *N Engl J Med* 2015;373(20):1947-1956.

Identifying elder abuse. National Institute of Justice, 2012.

Han SD, Mosqueda L: Elder abuse in the COVID-19 era. *J Am Geriatr Soc* 2020;68(7):1386-1387.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

18. An 81-year-old male is brought to the emergency department by his wife 2 hours after the onset of right-sided weakness. She also reports that 2 months ago the patient suffered a severe concussion from a fall off a ladder and was hospitalized overnight. The patient has known coronary artery disease and takes aspirin, 81 mg daily. He had a total right knee replacement 1 month ago, using spinal anesthesia. CT of the head shows no hemorrhage. His blood pressure is now 174/104 mm Hg and it has been 2½ hours since the onset of symptoms.

Which one of the following would be a CONTRAINDICATION to the use of intravenous alteplase (Activase) in this patient?

- A) His use of aspirin
- B) His history of recent surgery

- C) His history of a recent lumbar puncture
- D) His history of head trauma
- E) The length of time since the stroke

Powers WJ, Rabinstein AA, Ackerson T, et al; American Heart Association Stroke Council: 2018 guidelines for the early management of patients with acute ischemic stroke: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2018;49(3):e46-e110.

Tsivgoulis G, Katsanos AH, Malhotra K, et al: Thrombolysis for acute ischemic stroke in the unwitnessed or extended therapeutic time window. *Neurology* 2020;94(12):e1241-e1248.

Rabinstein AA: Update on treatment of acute ischemic stroke. *Continuum (Minneapolis)* 2020;26(2):268-286.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

19. An 81-year-old female has recently developed symptoms of mild cognitive impairment. She has multiple chronic medical problems, including depression, hypertension, stable atrial fibrillation, diabetes mellitus, back pain, and urinary incontinence. Her medications include the following:

Cyclobenzaprine  
 Digoxin  
 Lisinopril/hydrochlorothiazide (Zestoretic)  
 Metformin (Glucophage)  
 Oxybutynin  
 Paroxetine (Paxil)

Which one of the patient's medications is LEAST likely to be causing her cognitive problems?

- A) Cyclobenzaprine
- B) Digoxin
- C) Metformin
- D) Oxybutynin
- E) Paroxetine

By the 2019 American Geriatrics Society Beers Criteria Update Expert Panel: American Geriatrics Society 2019 updated AGS Beers Criteria for potentially inappropriate medication use in older adults. *J Am Geriatr Soc* 2019;67(4):674-694.

Ng TP, Feng L, Yap KB, et al: Long-term metformin usage and cognitive function among older adults with diabetes. *J Alzheimers Dis* 2014;41(1):61-68.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

20. A 72-year-old male was watching television yesterday when he noted a change in vision that seemed like a shade being pulled down over his right eye. His symptoms totally resolved after 30 minutes. He had no other symptoms. His medical history is significant for hypertension and hyperlipidemia, both controlled with medication. Today a neurologic examination is completely normal. Ultrasonography of the carotid arteries 2 years ago showed 70% occlusion on the left and 60% occlusion on the right.

Which one of the following would be the most appropriate next step?

- A) Intensification of medical management of hypertension and hyperlipidemia
- B) Starting aspirin, 81 mg daily
- C) Starting warfarin
- D) Ordering a thrombophilia panel



## E) Referral for carotid endarterectomy

Kernan WN, Ovbiagele B, Black HR, et al; American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, and Council on Peripheral Vascular Disease: Guidelines for the prevention of stroke in patients with stroke and transient ischemic attack: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2014;45(7):2160-2236.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

21. The family of an 84-year-old male brings him to your office because they are concerned about weight loss. Staff members in his assisted living facility have noted that the patient seems to be having difficulty swallowing. The family also tells you that the patient has a history of several “small strokes.” He reports that food sticks in the back of his throat and that it sometimes feels like there is a lump in his throat.

Which of the following symptoms is NOT associated with this problem?

- A) Coughing or choking during swallowing
- B) Food dribbling from the mouth
- C) Discomfort in the lower chest
- D) A nasal quality to the voice
- E) Nasal regurgitation

Thiyagalingam S, Kulinski AE, Thorsteinsdottir B, et al: Dysphagia in older adults. *Mayo Clin Proc* 2021;96(2):488-497.

Bajjens LW, Clavé P, Cras P, et al: European Society for Swallowing Disorders–European Union Geriatric Medicine Society white paper: Oropharyngeal dysphagia as a geriatric syndrome. *Clin Interv Aging* 2016;11:1403-1428.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

22. A 74-year-old male presents to the emergency department in the morning with an acute ischemic stroke. He has a previous history of hypertension and type 2 diabetes. CT of the head does not indicate any hemorrhage. His blood pressure is 160/85 mm Hg and his pulse rate is 64 beats/min and regular. He has significant weakness in his left arm and left leg. He does not know when his symptoms started because he was fine when he went to bed. You admit him to the general medical floor.

Which one of the following is true about the use of unfractionated heparin or low molecular weight heparin in this situation?

- A) Urgent anticoagulation is recommended to prevent recurrent stroke
- B) Urgent anticoagulation is recommended to prevent stroke progression
- C) Urgent anticoagulation should be avoided in stroke patients
- D) Initiation of anticoagulant therapy within 24 hours of treatment with intravenously administered rtPA is recommended

Jauch EC, Saver JL, Adams HP Jr, et al; American Heart Association Stroke Council; Council on Cardiovascular Nursing; Council on Peripheral Vascular Disease; Council on Clinical Cardiology: Guidelines for the early management of patients with acute ischemic stroke: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2013;44(3):870-947.

Powers WJ, Rabinstein AA, Ackerson T, et al; American Heart Association Stroke Council: 2018 guidelines for the early management of patients with acute ischemic stroke: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2018;49(3):e46-e110.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

23. An 82-year-old female with rheumatoid arthritis and hypothyroidism sees you for a routine visit. She reports a 2-month history of generalized fatigue. Her weight has been stable. A CBC reveals a hemoglobin level of 10.9 g/dL (N 12.0–16.0) and a mean corpuscular volume of 92  $\mu\text{m}^3$  (N 80–100). Additional testing reveals the following:

Reticulocyte count.....<2.0% (N 0.5–2.5)  
Serum iron.....52  $\mu\text{g/dL}$  (N 60–100)  
Total iron-binding capacity.....224  $\mu\text{g/dL}$  (N 250–400)  
Serum ferritin.....180 ng/mL (N 100–300)  
Stool occult blood.....3 negative tests

The patient underwent colonoscopy 2 years ago and findings were normal. The patient’s low hemoglobin level is most likely due to

- A) normal aging changes
- B) iron deficiency anemia
- C) vitamin B<sub>12</sub> deficiency
- D) anemia of chronic disease
- E) blood loss

Goodnough LT, Schrier SL: Evaluation and management of anemia in the elderly. *Am J Hematol* 2014;89(1):88-96.

Camaschella C: Iron-deficiency anemia. *N Engl J Med* 2015;372(19):1832-1843.

Lanier JB, Park JJ, Callahan RC: Anemia in older adults. *Am Fam Physician* 2018;98(7):437-442.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

24. A 76-year-old male has bilateral knee pain caused by osteoarthritis. He is having increasing difficulty walking long distances and says that occasionally his knees feel like they might “give out.” He asks what can be done to relieve his pain and improve function. He is obese but has no known cardiac disease. A physical examination shows no evidence of ligamentous instability and is otherwise consistent with degenerative joint disease.

Which one of the following would be the LEAST appropriate treatment option?

- A) A supervised exercise program
- B) Low-dose oral glucosamine/chondroitin
- C) Acetaminophen, 2–4 g daily
- D) Assistive devices such as braces, elastic bandages, insoles, or canes
- E) Topical capsaicin

Baker E, Bernstein I, Birrell, et al; Guideline Development Group, National Collaborating Centre and NICE project team: *Osteoarthritis: Care and Management*. National Institute for Health and Care Excellence, guideline CG177, 2014.

Medical management of adults with osteoarthritis. Michigan Quality Improvement Consortium, 2019.

Kelley D, Kelsberg G: Kinesiology taping for knee osteoarthritis pain. *Am Fam Physician* 2021;103(7):434-436.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

25. An 85-year-old has an acute stroke. Which one of the following is true regarding mood changes following his stroke?

- A) He should be screened for depression within the first few days after the stroke
- B) Post-stroke apathy responds to antidepressants

- C) He should be placed on antidepressants prophylactically
- D) Cognitive-behavioral therapy is an effective treatment for post-stroke depression

Winstein CJ, Stein J, Arena R, et al; American Heart Association Stroke Council; Council on Cardiovascular and Stroke Nursing; Council on Clinical Cardiology; Council on Quality of Care and Outcomes Research: Guidelines for adult stroke rehabilitation and recovery: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2016;47(6):e98-e169.

Medeiros GC, Roy D, Kontos N, Beach SR: Post-stroke depression: A 2020 updated review. *Gen Hosp Psychiatry* 2020;66:70-80.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

26. A 76-year-old male has a chronic indwelling Foley catheter secondary to chronic bladder outlet obstruction following a transurethral prostate resection. Which one of the following statements regarding chronic indwelling Foley catheter management is true?

- A) Routine catheter irrigation should be used to prevent obstruction
- B) Antibiotic prophylaxis should be routinely used before catheter changes
- C) The catheter should be changed only when necessary
- D) The urethral meatus should be cleansed with antiseptics daily to prevent infection

Gould CV, Umscheid CA, Agarwal RK, et al; Healthcare Infection Control Practices Advisory Committee (HICPAC): *Guideline for Prevention of Catheter-Associated Urinary Tract Infections 2009*. Centers for Disease Control and Prevention, updated 2019.

Lachance CC, Grobelna A: Management of patients with long-term indwelling urinary catheters: A review of guidelines. Canadian Agency for Drugs and Technologies in Health, 2019.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

27. A 72-year-old male comes to your office for a preoperative assessment prior to elective knee surgery. His medical history includes osteoarthritis, COPD, hypertension, and type 2 diabetes. He has no history of heart disease. He has a 60-pack-year smoking history. He is unable to walk more than 2 blocks or climb a flight of stairs due to knee pain and shortness of breath. On examination his blood pressure is 125/75 mm Hg and you note decreased breath sounds and occasional wheezes. Cardiac findings are unremarkable.

Which one of the following is NOT a risk factor for perioperative or postoperative complications in this patient?

- A) His smoking history
- B) His inability to climb a flight of stairs
- C) Hypertension
- D) COPD
- E) Type 2 diabetes

Ward WH, Manstein SM, Goel N, et al: Optimal preoperative assessment of the geriatric patient. *Perioper Care Oper Room Manag* 2017;9:33-38.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

28. A 68-year-old male is brought to the urgent care clinic by his son because of a history consistent with a TIA 10 days ago. His symptoms resolved in about 30 minutes. He did not tell anyone until today, when he mentioned it to his son.

Information needed to calculate a risk score that would define his risk for a completed stroke in the next 30 days and the need for hospitalization now would include all the following EXCEPT

- A) age
- B) blood pressure
- C) clinical features
- D) duration of symptoms
- E) any history of depression

Tsivgoulis G, Spengos K, Manta P, et al: Validation of the ABCD score in identifying individuals at high early risk of stroke after a transient ischemic attack: A hospital-based case series study. *Stroke* 2006;37(12):2892-2897.

Johnston SC, Rothwell PM, Nguyen-Huynh MN, et al: Validation and refinement of scores to predict very early stroke risk after transient ischaemic attack. *Lancet* 2007;369(9558):283-292.

Simmons BB, Cirignano B, Gadegebeku AB: Transient ischemic attack: Part I. Diagnosis and evaluation. *Am Fam Physician* 2012;86(6):521-526.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

29. A 70-year-old right hand–dominant male has had a tremor in his right hand for 5 years. It is now getting worse, and he is also developing a tremor in his left hand. He says his walking speed has become slower. There is no family history of similar problems.

On examination his facial expressions seem diminished. He has a resting tremor in both hands, but it is more prominent on the right. He has a slightly stooped posture and you note a decreased arm swing when he walks. There is some resistance when his arms are passively flexed and extended at the elbows. His Mini-Mental State Examination score is 27 out of 30.

Which one of the following is the preferred first-line treatment for this patient?

- A) Carbidopa/levodopa (Sinemet)
- B) Donepezil (Aricept)
- C) Pramipexole (Mirapex)
- D) Primidone (Mysoline)
- E) Propranolol

Halli-Tierney AD, Luker J, Carroll DG: Parkinson disease. *Am Fam Physician* 2020;102(11):679-691.

Parkinson’s disease in adults: Diagnosis and management. National Institute for Health and Care Excellence, 2017.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

30. A 71-year-old female sees you for follow-up 2 weeks after she was discharged from the hospital following a non–ST-segment myocardial infarction. One year ago she had a single episode of atrial flutter and was diagnosed with systolic heart failure, with an ejection fraction of 28%. She has remained in sinus rhythm since that time. Her medical history also includes hypertension and hyperlipidemia.

The patient’s medications include lisinopril/hydrochlorothiazide (Zestoretic), 10 mg/25 mg once daily; atorvastatin (Lipitor), 40 mg daily; metoprolol tartrate (Lopressor), 50 mg twice daily; and aspirin, 81 mg daily. Results of her most recent lipid panel include a total cholesterol level of 180 mg/dL, an HDL-cholesterol level of 45 mg/dL, and an LDL-cholesterol level of 94 mg/dL. Her blood pressure in the office today is 136/80 mm Hg.

One of the patient’s friends recently had a stroke and is now taking warfarin, and the patient asks if she should be taking warfarin so she won’t have a stroke in the future. Which one of the following statements regarding the use of warfarin for primary prevention of ischemic stroke in patients with sinus rhythm is true?

- A) It should be considered instead of aspirin for stroke prevention because her LDL-cholesterol level is >70 mg/dL
- B) It should be considered because of her severe left ventricular dysfunction
- C) It should be considered for stroke prevention because she is still within 3 weeks of her myocardial infarction
- D) It should be considered because of her past history of atrial flutter

O’Gara PT, Kushner FG, Ascheim DD, et al; American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines: 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction: A report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation* 2013;127(4):e362-e425.

Meschia JF, Bushnell C, Boden-Albala B, et al; American Heart Association Stroke Council; Council on Cardiovascular and Stroke Nursing; Council on Clinical Cardiology; Council on Functional Genomics and Translational Biology; Council on Hypertension: Guidelines for the primary prevention of stroke: A statement for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2014;45(12):3754-3832.

January CT, Wann LS, Calkins H, et al: 2019 AHA/ACC/HRS focused update of the 2014 AHA/ACC/HRS guideline for the management of patients with atrial fibrillation: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. *J Am Coll Cardiol* 2019;74(1):104-132.

Nygaard MH, Hvas AM, Grove EL: Efficacy and safety of oral anticoagulants in patients with systolic heart failure in sinus rhythm: A systematic review and meta-analysis of randomized controlled trials and cohort studies. *TH Open* 2020;4(4):e383-e392.

Jame S, Barnes G: Stroke and thromboembolism prevention in atrial fibrillation. *Heart* 2020;106(1):10-17.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

31. An 82-year-old male with a history of hypertension controlled with lisinopril/hydrochlorothiazide (Zestoretic) and diltiazem (Cardizem) comes to your office because of intermittent shortness of breath and lightheadedness that started earlier that day. He has no history of valvular heart disease and has not had these symptoms in the past. On examination he is afebrile with a blood pressure of 118/82 mm Hg. His pulse rate is 110–120 beats/min and irregularly irregular, his respiratory rate is 18/min, and his oxygen saturation is 92% on room air at rest. His lungs are clear and there is no peripheral edema. An EKG shows atrial fibrillation.

Which one of the following is true regarding this patient?

- A) Pharmacologic cardioversion is contraindicated
- B) Anticoagulation prior to cardioversion is contraindicated
- C) Intravenous amiodarone may facilitate conversion to sinus rhythm
- D) Digoxin should be started for rhythm control

January CT, Wann LS, Calkins H, et al: 2019 AHA/ACC/HRS focused update of the 2014 AHA/ACC/HRS guideline for the management of patients with atrial fibrillation: A report of the American College of Cardiology/American Heart Association Task Force on clinical practice guidelines and the Heart Rhythm Society in collaboration with the Society of Thoracic Surgeons. *Circulation* 2019;140(2):e125-e151.

Slavik RS, Tisdale JE, Borzak S: Pharmacologic conversion of atrial fibrillation: A systematic review of available evidence. *Prog Cardiovasc Dis* 2001;44(2):121-152.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

32. A 72-year-old male with multiple myeloma presents with worsening pain in his back and ribs. He has tried both ibuprofen and hydrocodone but neither has provided adequate pain relief. He prefers to minimize the number of medications he takes.

Which one of the following would be the most appropriate agent for pain control in this patient?

- A) Diclofenac (Voltaren) gel
- B) Duloxetine (Cymbalta)
- C) Lidocaine patch (Lidoderm)

- D) Morphine
- E) Pregabalin (Lyrica)

Wiffen PJ, Wee B, Moore RA: Oral morphine for cancer pain. *Cochrane Database Syst Rev* 2016;(4):CD003868.

Scarborough BM, Smith CB: Optimal pain management for patients with cancer in the modern era: Pain management for patients with cancer. *CA Cancer J Clin* 2018;68(3):182-196.

*WHO Guidelines for the Pharmacological and Radiotherapeutic Management of Cancer Pain in Adults and Adolescents*. World Health Organization, 2018.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

33. An 82-year-old male presents with a 2-month history of headache in the right temporal area. He says his right temple has also been tender to the touch, and his jaw hurts when he chews his food. On examination the right temporal artery seems thickened and is tender to palpation.

Which one of the following would NOT be indicated in the initial approach to this problem?

- A) An erythrocyte sedimentation rate
- B) CT of the head
- C) Beginning corticosteroids today
- D) Ultrasonography of the temporal artery
- E) Referral for a temporal artery biopsy

Serling-Boyd N, Stone JH: Recent advances in the diagnosis and management of giant cell arteritis. *Curr Opin Rheumatol* 2020;32(3):201-207.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

34. A 67-year-old male has an acute ischemic stroke. He has a history of hypertension managed with lisinopril (Prinivil, Zestril). He is given intravenous thrombolytics according to the recommended protocol and his neurologic symptoms partially resolve. Six hours after admission his blood pressure is 175/100 mm Hg.

According to the American College of Cardiology/American Heart Association guidelines on management of acute ischemic stroke, the best course of action would be

- A) continued monitoring with no specific therapy to lower blood pressure
- B) doubling his lisinopril dosage starting tomorrow morning
- C) nitroprusside intravenously, titrated to reduce systolic blood pressure by 15%–20% over several hours
- D) clonidine (Catapres), 0.1 mg orally every 2 hours until the systolic blood pressure is <160 mm Hg
- E) hydralazine, 25 mg intravenously every 6 hours until the systolic blood pressure is <160 mm Hg

Whelton PK, Carey RM, Aronow WS, et al: 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Hypertension* 2018;71(6):e13-e115.

Powers WJ, Rabinstein AA, Ackerson T, et al; American Heart Association Stroke Council: 2018 guidelines for the early management of patients with acute ischemic stroke: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2018;49(3):e46-e110.

Gorelick PB, Qureshi S, Farooq MU: Management of blood pressure in stroke. *Int J Cardiol Hypertens* 2019;3:100021.

(Last Modified: September 2022)

(Last Reviewed: September 2022)

35. A 78-year-old female has been on omeprazole (Prilosec), 40 mg daily, for several years, for reported symptoms of

gastroesophageal reflux. She is currently asymptomatic and had normal findings on endoscopy 2 years ago.

Continued use of omeprazole would most increase her risk for which one of the following?

- A) Enteric infections
- B) Pneumonia
- C) Interstitial nephritis
- D) Osteoporotic fracture

Moayyedi P, Eikelboom JW, Bosch J, et al: Safety of proton pump inhibitors based on a large, multi-year, randomized trial of patients receiving rivaroxaban or aspirin. *Gastroenterology* 2019;157(3):682-691.e2.

(Last Modified: January 2022)

(Last Reviewed: April 2022)

36. A 91-year-old male with heart failure has a creatinine clearance of 60 mL/min/1.73 m<sup>2</sup>, a left ventricular ejection fraction of 40%, and intermittent 1+ edema of the lower extremities.

Which one of the following medications would be LEAST appropriate?

- A) ACE inhibitors
- B) Aldosterone receptor antagonists
- C)  $\beta$ -Blockers
- D) Calcium channel blockers
- E) Diuretics

Yancy CW, Jessup M, Bozkurt B, et al: 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. *Circulation* 2017;136(6):e137-e161.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

37. A 68-year-old female has an acute ischemic stroke. CT of the head shows no bleeding or masses. Five days later while in physical therapy she has a brief 60-second focal seizure that resolves spontaneously.

Which one of the following would be most appropriate at this point?

- A) Observation only
- B) An EEG
- C) Diazepam (Valium)
- D) Levetiracetam (Keppra)
- E) Phenytoin (Dilantin)

Holtkamp M, Beghi E, Benninger F, et al: European Stroke Organisation guidelines for the management of post-stroke seizures and epilepsy. *Eur Stroke J* 2017;2(2):103-115.

Doria JW, Forgacs PB: Incidence, implications, and management of seizures following ischemic and hemorrhagic stroke. *Curr Neurol Neurosci Rep* 2019;19(7):37.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

38. Because the patient panel for your practice has aged you are exploring ways of identifying cognitive decline. Which

one of the following statements about screening for cognitive impairment in older adults is true?

- A) The U.S. Preventive Services Task Force recommends screening for dementia in patients over age 65
- B) The Mini-Cog test cutoff score varies based on the patient's level of education
- C) The Montreal Cognitive Assessment (MoCA) is free to use
- D) The St. Louis University Mental Status Examination (SLUMS) is more sensitive than the Mini Mental Status Exam (MMSE) for detecting cognitive impairment

*Final Recommendation Statement: Cognitive Impairment in Older Adults: Screening.* US Preventive Services Task Force, 2020.

Falk N, Cole A, Meredith TJ: Evaluation of suspected dementia. *Am Fam Physician* 2018;97(6):398-405.

Norris D, Clark MS, Shipley S: The mental status examination. *Am Fam Physician* 2016;94(8):635-641.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

39. An 80-year-old female has recently developed generalized weakness and increasing difficulty carrying groceries and walking up stairs. She has been widowed for 3 years and has been sedentary since the death of her husband. Her medical history includes type 2 diabetes, osteoarthritis, and hypertension. Her medications include metformin (Glucophage), 500 mg twice daily; acetaminophen, 500 mg three times daily as needed; and lisinopril/hydrochlorothiazide (Zestoretic), 10/25 mg once daily. Her blood pressure is 136/84 mm Hg and her hemoglobin A<sub>1c</sub> is 7.8%.

Which one of the following would NOT be appropriate when recommending an exercise program for this patient?

- A) A stress EKG prior to starting an exercise program
- B) Walking for a total of 30 minutes daily, 5 days a week
- C) Introductory tai chi
- D) Resistance training
- E) Aquatic exercises

Lee PG, Jackson EA, Richardson CR: Exercise prescriptions in older adults. *Am Fam Physician* 2017;95(7):425-432.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

40. A 72-year-old left hand–dominant male presents to your office urgently because he thinks he has had a stroke. He had a similar episode 3 months ago that resolved on its own after an hour, so he thought the same thing would happen this time. You have treated him for hypertension for several years but he has no other chronic medical problems. On examination you note slurred speech and impaired fine motor coordination of his left hand. The examination is otherwise normal.

These findings are most consistent with which type of infarct?

- A) Brain stem
- B) Cerebellar
- C) Lacunar
- D) Left middle cerebral artery
- E) Occipital lobe

Norrving B: Long-term prognosis after lacunar infarction. *Lancet Neurol* 2003;2(4):238-245.

Caplan LR: Lacunar infarction and small vessel disease: Pathology and pathophysiology. *J Stroke* 2015;17(1):2-6.

Regenhardt RW, Das AS, Lo EH, Caplan LR: Advances in understanding the pathophysiology of lacunar stroke: A review. *JAMA Neurol*



(Last Modified: January 2022)

(Last Reviewed: January 2022)

41. A 78-year-old female presents with diffuse abdominal pain, abdominal distention, diminished bowel sounds, and nausea with occasional vomiting. Her medical history includes type 2 diabetes and well controlled hypertension. She has a previous history of right upper-quadrant colicky pain, but no history of previous abdominal surgery.

A CBC reveals a hematocrit of 38% (N 36–46) and a WBC count of 11,000/mm<sup>3</sup> (N 4300–10,800). Serum electrolytes, amylase, and lipase are within normal limits. A urinalysis is normal. Plain radiographs of the abdomen show a small bowel obstruction, air in the biliary tract, and a biliary calculus.

The most likely diagnosis is

- A) diverticulitis
- B) acute cholecystitis
- C) gallstone ileus
- D) acute pancreatitis

Magidson PD, Martinez JP: Abdominal pain in the geriatric patient. *Emerg Med Clin North Am* 2016;34(3):559-574.

Leuthauser A, McVane B: Abdominal pain in the geriatric patient. *Emerg Med Clin North Am* 2016;34(2):363-375.

Chang CM, Peng CZ, Chen YC, How CK: Image of the month: Gallstone ileus. *Clin Med (Lond)* 2017;17(3):284-285.

Nuño-Guzmán CM, Marín-Contreras ME, Figueroa-Sánchez M, Corona JL: Gallstone ileus, clinical presentation, diagnostic and treatment approach. *World J Gastrointest Surg* 2016;8(1):65-76.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

42. You see a 68-year-old female for a routine follow-up visit for hypertension and hyperlipidemia. Her blood pressure is well controlled with lisinopril (Prinivil, Zestril) and she takes atorvastatin (Lipitor), 80 mg daily, and aspirin, 81 mg daily. She reports an episode of numbness and weakness in her left arm within the past 10 days. She says that the symptoms lasted less than 5 minutes and have not occurred since that time. She has no prior history of similar symptoms. Her vital signs and a physical examination are normal.

Which one of the following would be LEAST appropriate at this time?

- A) Noncontrast CT of the head
- B) Carotid ultrasonography
- C) CT angiography of the carotid arteries
- D) Magnetic resonance angiography

Kernan WN, Ovbiagele B, Black HR, et al; American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, and Council on Peripheral Vascular Disease: Guidelines for the prevention of stroke in patients with stroke and transient ischemic attack: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2014;45(7):2160-2236.

Simmons BB, Cirignano B, Gadegebeku AB: Transient ischemic attack: Part I. Diagnosis and evaluation. *Am Fam Physician* 2012;86(6):521-526.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

43. An 81-year-old male reports nocturia. He says he usually has to get up twice during the night and has also noticed mild hesitancy and an occasional decrease in the force of his urinary stream. He has not noted urinary frequency or

dysuria, and he feels like he empties his bladder. He has not had hematuria or a fever. He has New York Heart Association class II heart failure and does not have a history of diabetes mellitus. A year ago he fell after standing up and fractured his right hip. His American Urologic Association symptom score is 5.

You prescribe finasteride (Proscar) but when he returns for follow-up 1 month later his symptoms have not improved. Ultrasonography of the bladder reveals no urinary retention and he has a symmetrically enlarged, nontender, non-nodular prostate. A urinalysis is normal.

Which one of the following would be most appropriate at this time?

- A) Observation only
- B) A PSA level
- C) Ultrasonography of the prostate
- D) Tamsulosin (Flomax)
- E) Referral to a urologist

Pearson R, Williams PM: Common questions about the diagnosis and management of benign prostatic hyperplasia. *Am Fam Physician* 2014;90(11):769-774.

McVary KT, Roehrborn CG, Avins AL, et al: American Urological Association Guideline: Management of Benign Prostatic Hyperplasia. American Urological Association, 2010, reconfirmed 2014.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

44. You see an active 72-year-old male for a routine annual evaluation. He recently received a flyer in the mail about screening carotid ultrasonography at his local senior center and asks whether you think it would be worthwhile.

Which one of the following is true regarding this type of screening?

- A) All patients with a 10-year Framingham coronary artery disease risk >10% should be screened for carotid artery stenosis (CAS)
- B) The U.S. Preventive Services Task Force recommends against screening for asymptomatic CAS in the healthy adult population
- C) Asymptomatic women have been shown to derive a greater benefit from carotid endarterectomy than asymptomatic men
- D) Patients over the age of 80 with asymptomatic CAS have been found to benefit more from carotid endarterectomy compared to younger patients

US Preventive Services Task Force; Krist AH, Davidson KW, et al: Screening for asymptomatic carotid artery stenosis: US Preventive Services Task Force Recommendation Statement. *JAMA* 2021;325(5):476-481.

*Final Recommendation Statement: Carotid Artery Stenosis: Screening.* US Preventive Services Task Force, 2021.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

45. An otherwise healthy 75-year-old male is found to have persistently elevated blood pressure on three visits and on home blood pressure monitoring over a 2-month period. He has no past history of hypertension or coronary artery disease, and no evidence of significant renovascular hypertension on physical examination or laboratory testing.

Treatment with which one of the following would NOT be appropriate at this point?

- A) A  $\beta$ -blocker

- B) An ACE inhibitor
- C) A diuretic
- D) A calcium channel blocker

James PA, Oparil S, Carter BL, et al: 2014 evidence-based guideline for the management of high blood pressure in adults: Report from the panel members appointed to the Eighth Joint National Committee (JNC 8). *JAMA* 2014;311(5):507-520.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

46. A 64-year-old nonsmoking female asks your advice regarding how to reduce her risk for stroke. Her past medical history is unremarkable but her 87-year-old mother recently had a stroke.

Which one of the following would be an appropriate recommendation for this patient to reduce her risk of stroke?

- A) Moderate physical activity at least 3 or 4 days per week
- B) Aspirin, 325 mg daily
- C) Limiting alcohol intake to one drink per day or less
- D) High-sensitivity C-reactive protein screening

Meschia JF, Bushnell C, Boden-Albala B, et al; American Heart Association Stroke Council; Council on Cardiovascular and Stroke Nursing; Council on Clinical Cardiology; Council on Functional Genomics and Translational Biology; Council on Hypertension: Guidelines for the primary prevention of stroke: A statement for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2014;45(12):3754-3832.  
Arnett DK, Blumenthal RS, Albert MA, et al: 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol* 2019;March 17:[Epub ahead of print].

Larsson SC, Wallin A, Wolk A, Markus HS: Differing association of alcohol consumption with different stroke types: A systematic review and meta-analysis. *BMC Med* 2016;14(1):178.

Mostofsky E, Chahal HS, Mukamal KJ, et al: Alcohol and immediate risk of cardiovascular events: A systematic review and dose-response meta-analysis. *Circulation* 2016;133(10):979-987.

(Last Modified: January 2022)

(Last Reviewed: April 2022)

47. A 78-year-old male nursing home resident has severe dementia due to Alzheimer's disease. His current medications include donepezil (Aricept) and memantine (Namenda) for dementia, and hydrochlorothiazide for hypertension.

The nursing home staff reports that the patient has been increasingly agitated over the past week, particularly in the early evening. An examination and workup do not suggest any new illness.

Which one of the following would be most appropriate at this point?

- A) Soft wrist restraints when the patient is in bed
- B) Environmental adjustments
- C) Carbamazepine (Tegretol)
- D) Haloperidol
- E) Risperidone (Risperdal)

Reese TR, Thiel DJ, Cocker KE: Behavioral disorders in dementia: Appropriate nondrug interventions and antipsychotic use. *Am Fam Physician* 2016;94(4):276-282.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

48. During a regularly scheduled visit an 89-year-old female mentions that she has fallen twice at home within the last 3 months. She has not had any loss of consciousness, dizziness, or lightheadedness. She has not lost weight recently. Her medical history is notable only for hypertension controlled with diltiazem (Cardizem) and mild degenerative joint disease of both knees treated with acetaminophen.

Which one of the following would be LEAST helpful in the evaluation of this patient?

- A) A review of her alcohol consumption
- B) Orthostatic blood pressure measurements
- C) Gait and balance evaluation
- D) Visual acuity testing
- E) Thallium or dobutamine stress testing

Factora R: Assessment of falls in the elderly. BMJ Best Practice, 2021.

STEADI—Older adult fall prevention. Centers for Disease Control and Prevention, 2020.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

49. You are working with your local hospital's medical staff on updated guidelines and improving care of patients who present with a possible stroke. Assuming that CT of the head is negative for bleeding, which one of the following patients would be a candidate for thrombolytic therapy for stroke?

- A) A 67-year-old who awakened with left arm and left leg weakness
- B) A 70-year-old with right arm and leg weakness causing mild impairment that started 1 hour ago and whose symptoms have improved during his time in the emergency department
- C) A comatose 70-year-old with a flaccid left side whose CT shows a large area of infarct in the perfusion area of the middle cerebral artery
- D) A 72-year-old who takes warfarin and has an INR of 2.2, and whose stroke symptoms started 1 hour ago
- E) A 74-year-old with diabetes mellitus and a 1-hour history of left arm and left leg weakness, a blood pressure of 170/100 mm Hg, and a blood glucose level of 311 mg/dL

Lansberg MG, O'Donnell MJ, Khatri P, et al; American College of Chest Physicians. Antithrombotic and thrombolytic therapy for ischemic stroke: Antithrombotic therapy and prevention of thrombosis, 9th ed: American College of Chest Physicians evidence-based clinical practice guidelines. *Chest* 2012;141(2 Suppl):e601S-6036S.

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(Last Modified: January 2022)

(Last Reviewed: January 2022)

50. An 88-year-old female falls at her nursing home and is admitted to the hospital with a hip fracture. She was ambulatory prior to this accident. Her chronic medical problems include hypertension, coronary artery disease, stage 3 chronic kidney disease (serum creatinine clearance 40 mL/min/1.73 m<sup>2</sup>), mild dementia, and osteoporosis. She has been treated with metoprolol succinate (Toprol-XL) for the past 3 years.

Which one of the following management strategies would be INAPPROPRIATE for this patient while she is in the hospital?

- A) Continuing metoprolol
- B) Starting prophylactic antibiotics within 1 hour before surgery and stopping them within 24 hours after

completion of the surgery

- C) Placing an indwelling Foley catheter prior to surgery and leaving it in place until discharge
- D) Screening for delirium daily for the first few days after surgery
- E) Beginning ambulation as soon as possible

Fleisher LA, Fleischmann KE, Auerbach AD, et al: 2014 ACC/AHA guideline on perioperative cardiovascular evaluation and management of patients undergoing noncardiac surgery: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation* 2014;130(24):e278-e333.

Salkind AR, Rao KC: Antibiotic prophylaxis to prevent surgical site infections. *Am Fam Physician* 2011;83(5):585-590.

Mohanty S, Rosenthal RA, Russell MM, et al: *Optimal Perioperative Management of the Geriatric Surgical Patient: ACS NSQIP/AGS Best Practices Guideline*. American College of Surgeons, American Geriatrics Society, 2016.

Berrios-Torres SI, Umscheid CA, Bratzler DW, et al: Centers for Disease Control and Prevention guideline for the prevention of surgical site infection, 2017. *JAMA Surg* 2017;152(8):784-791.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

51. An 88-year-old female who lives in an assisted-living facility tells you that she has difficulty understanding the staff, and sometimes misunderstands information. An examination reveals no cerumen impaction, and an audiogram shows bilateral moderately severe sensorineural hearing loss.

While she is waiting for hearing aids, which one of the following strategies would NOT be helpful for improving communication with this patient?

- A) Speaking very loudly
- B) Reducing background noise
- C) Facing the patient directly, preferably at eye level
- D) Ensuring that vision correction is optimal

Walling AD, Dickson GM: Hearing loss in older adults. *Am Fam Physician* 2012;85(12):1150-1156.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

52. A 64-year-old male asks about ways to prevent a stroke. In the last 18 months both of his parents died as a result of a stroke. He has no history of cerebrovascular events, but smokes ½ pack of cigarettes per day and has a BMI of 29 kg/m<sup>2</sup>. He does not regularly exercise. His blood pressure is normal. He eats at fast food establishments multiple times weekly and drinks 1–2 beers per day. He has a total cholesterol level of 220 mg/dL, an HDL-cholesterol level of 40 mg/dL, and an LDL-cholesterol level of 136 mg/dL.

Which one of the following would be LEAST likely to reduce the chance of an initial stroke?

- A) A healthier diet
- B) Regular exercise
- C) Weight loss
- D) Alcohol cessation
- E) Smoking cessation

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(Last Modified: January 2022)

(Last Reviewed: January 2022)

53. A 72-year-old female has a 20-year history of type 2 diabetes. She is a nonsmoker and has no previous history of cardiovascular events. Her current medications include metformin (Glucophage), 500 mg twice daily; lisinopril (Prinivil, Zestril), 40 mg daily; and aspirin, 81 mg daily. Her blood pressure is 146/92 mm Hg. She has a total cholesterol level of 220 mg/dL, an LDL-cholesterol level of 105 mg/dL, an HDL-cholesterol level of 48 mg/dL, and a triglyceride level of 152 mg/dL. Her last urine albumin/creatinine ratio 6 months ago was 100 mg/g and her last estimated glomerular filtration rate was 50 mL/min/1.73 m<sup>2</sup>. Her hemoglobin A<sub>1c</sub> over the last year has ranged between 7.5% and 8.0%.

Which one of the following is true regarding this patient?

- A) Her optimal blood pressure is <150/90 mm Hg
- B) Statins are indicated
- C) She should stop taking aspirin
- D) Her diabetes regimen should be intensified

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(Last Modified: January 2022)

(Last Reviewed: January 2022)

54. An 81-year-old female has unintentionally lost 5 kg (11 lb) over the past 3 months. Her medical history includes hypertension, diabetes mellitus, anemia, and osteoporosis. Her current weight is 50 kg (110 lb) and her height is 157 cm (62 in). Her BMI is 20 kg/m<sup>2</sup>.

Which one of the following medications in her current regimen is LEAST likely to be contributing to her weight loss?

- A) Alendronate (Fosamax)
- B) Amlodipine (Norvasc)
- C) Hydrochlorothiazide
- D) Lisinopril (Prinivil)
- E) Metformin (Glucophage)

Gaddey HL, Holder K: Unintentional weight loss in older adults. *Am Fam Physician* 2014;89(9):718-722.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

55. A 76-year-old patient is in a nursing home recovering from a stroke. The patient's family asks about his chance of significant recovery.

Which one of the following would be appropriate advice?

- A) Early recovery of neurologic function is a sign of a good prognosis
- B) The National Institutes of Health Stroke Scale score in the first 24 hours after the stroke is more helpful than later scores for predicting long-term prognosis
- C) Lacunar strokes generally cause more severe disability than ischemic strokes of the major cerebral arteries
- D) The risk of recurrence of stroke is higher in the second year after a stroke than in the first year
- E) Patients who have two strokes in the same arterial territory will typically recover more quickly the second time

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(Last Modified: January 2022)

(Last Reviewed: January 2022)

56. An outbreak of influenza occurs at the nursing home where you are the medical director. Which one of the following is a control measure recommended by the CDC's Advisory Committee on Immunization Practices?

- A) Revaccinate all residents who do not have symptoms
- B) Give oseltamivir (Tamiflu), 75 mg daily for at least 2 weeks to all asymptomatic residents, unless they have a contraindication
- C) Give amantadine, 10 mg daily, as prophylaxis for residents with contraindications to oseltamivir
- D) Give zanamivir (Relenza), one inhalation daily, for 2 weeks to residents with COPD or other lung disease

Centers for Disease Control and Prevention; National Center for Immunization and Respiratory Diseases: Influenza (flu): Interim guidance for influenza outbreak management in long-term care and post-acute care facilities. Centers for Disease Control and Prevention, 2020.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

57. A 75-year-old female reports increasing difficulty with her vision. Her medical history is remarkable only for osteoporosis and well controlled hypertension. Her only medications are lisinopril/hydrochlorothiazide (Zestoretic) and alendronate (Fosamax).

Which one of the following is an indication for ophthalmologic referral for cataract evaluation?

- A) Halos or glare intolerance
- B) Positive Amsler grid testing
- C) Fluctuating visual changes
- D) Central visual loss

E) Flashes of light

Pelletier AL, Rojas-Roldan L, Coffin J: Vision loss in older adults. *Am Fam Physician* 2016;94(3):219-226.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

58. A 76-year-old male had an acute ischemic stroke 36 hours ago. He did not meet the criteria for thrombolytic therapy and is currently stable.

The treatment of choice in this situation is

- A) aspirin, 81 mg daily
- B) aspirin, 325 mg daily
- C) clopidogrel (Plavix), 75 mg daily
- D) clopidogrel, 75 mg daily, and aspirin, 81 mg daily
- E) ticagrelor (Brilinta), 90 mg twice daily

Johnston SC, Easton JD, Farrant M, et al: Clopidogrel and aspirin in acute ischemic stroke and high-risk TIA. *N Engl J Med* 2018;379(3):215-225.

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(Last Modified: January 2022)

(Last Reviewed: January 2022)

59. A 78-year-old female presents with urine leakage, with or without coughing, for the last week. She has not had this problem for more than 1–2 days in the past. She had a total hysterectomy/bilateral salpingo-oophorectomy at age 48. She has a history of type 2 diabetes and has been taking metformin (Glucophage) for several years. You recently added lisinopril (Prinivil, Zestril) to the diltiazem (Cardizem) and chlorthalidone she has been taking for hypertension. A urinalysis is negative for pyuria and bacteria.

Which one of the following is LEAST likely to be contributing to a transient cause of her symptoms?

- A) Detrusor muscle hyperactivity
- B) Atrophic vaginitis
- C) Poorly controlled diabetes mellitus
- D) Diltiazem
- E) Lisinopril

Khandelwal C, Kistler C: Diagnosis of urinary incontinence. *Am Fam Physician* 2013;87(8):543-550.

Hu JS, Pierre EF: Urinary incontinence in women: Evaluation and management. *Am Fam Physician* 2019;100(6):339-348.

(Last Modified: January 2022)

(Last Reviewed: January 2022)

60. A 70-year-old male presents to your hospital's urgent care facility with a 2-day history of fever and cough. His previous history is significant for heart failure, and he smokes one pack of cigarettes per day. He received pneumococcal polysaccharide vaccine (PPSV23, Pneumovax 23) at age 66 but declined the current year's



influenza vaccine when it was offered a month ago.

On examination his temperature is 39.4°C (102.9°F) and he has a cough, hypoxia, and a new lobar infiltrate on a chest radiograph. You arrange for admission to the hospital for pneumonia.

Which one of the following statements regarding this situation is true?

- A) Antibiotics should be given immediately
- B) Influenza vaccine should be given 1 week after discharge
- C) Pneumococcal conjugate vaccine (PCV13, Prevnar 13) should be given
- D) A repeat PPSV23 in 6–12 months is recommended
- E) Corticosteroids should be given on admission

Metlay JP, Waterer GW, Long AC, et al: Diagnosis and treatment of adults with community-acquired pneumonia. An official clinical practice guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med* 2019;200(7):e45-e67.

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*(Last Modified: January 2022)*

*(Last Reviewed: January 2022)*