

***Evidence-Based Geriatric Nursing Protocols for Best Practice 6th edition Boltz Test Bank***

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Test Bank for

# EVIDENCE-BASED GERIATRIC NURSING PROTOCOLS FOR BEST PRACTICE

Sixth Edition

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# Chapter 1: Developing and Evaluating Clinical Practice Guidelines: A Systematic Approach

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## Multiple Choice Test Questions

1. Models of evidence-based practice (EBP) involve which of the following steps when determining the process of developing protocols? Select all that apply.
  - \*a. Develop an answerable question
  - b. Compare the evidence to what one feels to be true
  - \*c. Critically appraise the evidence
  - \*d. Locate the best evidence

**Rationale:** Evidence-based practice (EBP) involves five steps:

1. Develop an answerable question
2. Locate the best evidence
3. Critically appraise the evidence
4. Integrate evidence into practice using clinical expertise with attention to patient's values and perspectives; and
5. Evaluate the outcome(s)

Comparing the evidence to what one feels to be true is not a part of evidence-based practice.

2. When critically evaluating the evidence used in a study, which level of evidence is at the bottom of the level of evidence (LOE) hierarchy pyramid?
  - \*a. Opinions of respected authorities
  - b. Systematic reviews of Clinical Practice Guidelines (CPGs)
  - c. Single experimental studies (Randomized Controlled Trials)
  - d. Nonexperimental studies

**Rationale:** The level of evidence (LOE) hierarchy pyramid highlights six levels of evidence. Opinions of respected authorities, internationally or nationally known, based on their clinical experience or the opinions of an expert committee, including regulatory or legal opinions, form the lowest level of evidence (i.e., Level VI, at the bottom of the LOE pyramid). The highest level of evidence, at the top of the pyramid, is comprised of systematic reviews, meta-analyses, or structured integrative reviews of evidence. Evidence judged to be at Level II comes from a single randomized controlled trial. Nonexperimental studies are considered Level IV evidence.

3. Which of the following questions are based on the PICO format? Select all that apply.
- \*a. In patients with osteoarthritis of the knee, is hydrotherapy more effective than traditional physiotherapy in relieving pain?
  - \*b. For obese children, does the use of community recreation activities compared to educational programs on lifestyle changes reduce the risk of diabetes mellitus?
  - \*c. For deep vein thrombosis, is D-dimer testing or ultrasound more accurate for diagnosis?
  - d. Do adults who binge drink have higher mortality rates?

**Rationale:** PICO stands for:

P - Population or patient problem

I - Intervention

C - Comparison group or standard practice

O - Outcomes

PICO format is used to frame the research question and facilitate literature search. Each research question is narrowed down to clearly state the population or the patient problem, the intervention being studied, the comparison group, and the outcome measures. In the question “In patients with osteoarthritis of the knee, is hydrotherapy more effective than traditional physiotherapy in relieving pain?”, patients with osteoarthritis form the population, hydrotherapy is the intervention that is being compared with traditional physiotherapy, and pain relief is the expected outcome. In the question “For obese children, does the use of community recreation activities compared to educational programs on lifestyle changes reduce the risk of diabetes mellitus?”, obese children form the study population, use of community recreation services is the intervention, being compared to educational programs on lifestyle changes, and reducing the risk of diabetes mellitus is the expected outcome. In the question “For deep vein thrombosis, is D-dimer testing or ultrasound more accurate for diagnosis?”, deep vein thrombosis is the patient problem, D-dimer testing is the intervention, being compared to ultrasound for accuracy of diagnosis, that is the expected outcome. The question “Do adults who binge drink have higher mortality rates?” does not follow the PICO format. In this question, adults form the population being studied, binge drinking is the intervention, and higher mortality rate is the outcome being studied. However, the comparison group is not defined and stated in the question.

4. Which of the following statements regarding the AGREE II instrument are true? Select all that apply.
- \*a. The AGREE instrument has 6 quality domains with 23 items divided among these domains.
  - \*b. Each domain is rated on a 4-point Likert-type scale from “strongly disagree” to “strongly agree” by a number of appraisers.
  - c. The six domain scores are aggregated into a single quality score.
  - d. The reliability of the AGREE instrument is decreased when each guideline is appraised by more than one appraiser.

**Rationale:** The AGREE II instrument has six quality domains: scope and purpose, stakeholder involvement, rigor of development, clarity and presentation, application, and editorial independence. A total of 23 items are divided into these domains. Each domain is rated on a 4-point Likert-type scale from “strongly disagree” to “strongly agree” by a number of appraisers. Appraisers evaluate how well the guideline they are assessing meets the criteria of the six quality domains. The six domain scores are independent and should not be aggregated into a single quality score. The reliability of the AGREE instrument is increased, not decreased, when each guideline is appraised by more than one appraiser.

5. Four appraisers give the following scores, as shown in the table below, for domain 1 (Scope & Purpose) in the AGREE II instrument. What will be the scaled domain score?

|             | Item 1 | Item 2 | Item 3 | Item 4 |
|-------------|--------|--------|--------|--------|
| Appraiser 1 | 5      | 6      | 6      | 17     |
| Appraiser 2 | 6      | 6      | 7      | 19     |
| Appraiser 3 | 2      | 4      | 3      | 9      |
| Appraiser 4 | 3      | 3      | 2      | 8      |
|             | 16     | 19     | 18     | 53     |

- a. 53%
- \*b. 57%
- c. 47%
- d. 19%

**Rationale:**

Maximum possible score = 7 (strongly agree) × 3 (items) × 4 (appraisers) = 84

Minimum possible score = 1 (strongly disagree) × 3 (items) × 4 (appraisers) = 12

The scaled domain score will be:

$$\frac{\text{Obtained score} - \text{Minimum possible score}}{\text{Maximum possible score} - \text{Minimum possible score}}$$

$$\frac{53 - 12}{84 - 12} \times 100 = 41 \div 72 \times 100 = 0.5694 \times 100 = 57\%$$

6. A 59-year-old patient is diagnosed with acute biliary pancreatitis and noninfected pancreatic necrosis on contrast enhanced computed tomography scan. The clinician plans to start a course of prophylactic antibiotics. Which study design is appropriate to evaluate if antibiotics prevent infection of noninfected pancreatic necrosis and decrease mortality?
- a. Case-controlled study
  - b. Randomized controlled trial
  - \*c. Systematic review and meta-analysis
  - d. Prospective cohort study

**Rationale:** Systematic review and meta-analysis of previous randomized control trials to evaluate use of antibiotics in preventing infection of noninfected pancreatic necrosis and decreasing mortality will be the appropriate study design in this case. Systematic reviews and meta-analysis constitute the highest level of evidence (Level I according to the level of evidence hierarchy pyramid).

Case-control studies are observational studies used to identify factors that may contribute to a medical condition by comparing subjects who have that condition/disease (the “cases”) with subjects who do not have the condition/disease but are otherwise similar (the “controls”). Case-control studies require fewer resources but more time; also the evidence obtained is inferior to other types of study designs (Level IV on the level of evidence hierarchy pyramid). Thus, this will not be an appropriate study design in this case. A randomized control trial is a study design with two study groups: the experimental group, where the intervention being studied is applied; and the control group, where no intervention is used or a placebo is used instead. A randomized control trial can be used in this case to evaluate if antibiotics prevent infection of noninfected pancreatic necrosis and decrease mortality. However, it will be difficult to find matching controls (with the same stage and severity of disease, and other matching demographic characteristics). Also, the study will require significant time, as the two study groups will have to be followed up for a significant period of time to see results. The evidence obtained from a single randomized control trial will still be inferior (Level II on the level of evidence hierarchy pyramid) as compared to that from meta-analysis and systematic review. A prospective cohort study follows over time a group of similar individuals (cohorts) who differ with respect to certain factors under study to determine how these factors affect rates of a certain outcome. Such studies are important for research on the etiology of diseases. In a prospective cohort study, at the time of enrolling subjects and collecting baseline exposure information, none of the subjects have developed any of the outcomes of interest. After baseline information is collected, subjects are followed “longitudinally,” i.e., over a period of time, usually for years, to determine if and when they become diseased and whether their exposure status changes outcomes. Thus, this will not be an appropriate study design to assess impact of an intervention.

7. In a study, patients with arthritic knee pain were identified and randomly allocated to two groups. One group of patients was given Ibuprofen for control of pain, and the other group was given a placebo. According to the level of evidence (LOE) hierarchy pyramid, what level of evidence will the results from this study generate??
- a. Level VI
  - b. Level V
  - \*c. Level II
  - d. Level III

**Rationale:** The study is a randomized control trial with two study groups: the experimental group, where the intervention—in this case Ibuprofen—is given; and the control group, where a placebo is used instead. Thus, this study will generate Level II evidence according to the level of evidence (LOE) hierarchy pyramid. Level VI is the lowest level of evidence in the LOE hierarchy pyramid and is made up of the opinions of respected authorities based on their clinical experience or the opinions of an expert committee, including regulatory or legal opinions. Level V evidence includes narrative literature reviews, case reports that are systematically obtained and of verifiable quality, or program evaluation data. A quasi-experimental study, such as a nonrandomized controlled single group pretest/posttest, time series or matched case-controlled study, is considered Level III evidence.

8. In a randomized double-blind trial to compare a new analgesic with a placebo for control of pain in arthritis, subjects report less pain while using the analgesic. The “p” value for the difference in pain scores between the two regimes is 0.002. What conclusions can be drawn from this study? Select all that apply.
- \*a. The drug is an effective analgesic.
  - \*b. There is evidence that the drug reduces pain in arthritis.
  - c. The drug is better than currently prescribed analgesics.
  - d. There is a 2% probability that the difference in pain scores is obtained only due to chance.

**Rationale:** The results of the study show a “p” value of 0.002 for difference in pain scores between the two regimes. It can be concluded that the drug is an effective analgesic and provides evidence that the drug reduces pain in arthritis. It is not possible to conclude whether the new analgesic is better than the currently prescribed analgesics as the study does not compare it with the current regime, but rather uses a placebo. The “p” value for difference in pain scores between the two regimes is 0.002. This means there is a probability of 0.2% that this difference is obtained only due to chance (and 99.8% probability that the difference is not due to chance).

9. A study is conducted to compare chemotherapy given at home with outpatient treatment for rectal cancer. The study enrolls 97 patients. Of these patients, 42 are treated at an outpatient clinic and 45 are treated at home. Treatment related toxicity in both groups is obtained and compared. What is the study design in this case?
- a. Randomized control trial
  - \*b. Observational study
  - c. Case-control study
  - d. Quasi-experimental study

**Rationale:** This study is an observational study design where two methods of providing treatment are being compared: chemotherapy given at home versus outpatient treatment for patients with rectal cancer. No intervention is applied in this study. A randomized control trial is comprised of two study groups: the experimental group, where the intervention being studied is applied; and the control group, where no intervention is used or a placebo is used instead. Case-control studies are observational studies used to identify factors that may contribute to a medical condition by comparing subjects who have that condition/disease (the "cases") with subjects who do not have the condition/disease but are otherwise similar (the "controls"). A quasi-experimental study is a non-randomized experimental study that can be used to assess causal impact of an intervention on a population.

10. A hospital patient care program specifies use of the STRATIFY instrument to measure the risk of falls in older adult inpatients. What is this an example of?
- a. A guideline
  - \*b. A protocol
  - c. A standard of practice
  - d. A recommendation

**Rationale:** A protocol is a detailed guide for approaching a clinical problem and is tailored to a specific situation. It is specific and rigid, not leaving much room for adjustment and change. Use of the STRATIFY instrument to measure the risk of falls in older adult patients is an example of a protocol. A guideline is a general rule or a principle that is more flexible and can be adapted within a large variety of settings. Standards of practice are not specific or necessarily evidence-based; rather these are generally accepted, formal, and published frameworks of practice. A recommendation is a suggestion for practice, not necessarily sanctioned by a formal, expert group.

## Chapter 2: Measuring Performance and Improving Quality

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### Multiple Choice Test Questions

1. The Institute of Medicine defines “quality” as:
  - a. Increase in the number of individuals receiving correct and safe medications, and receiving them in a timely manner
  - b. Improved effectiveness of treatment and medications derived from evidence-based medicine
  - \*c. The degree to which health services for individuals and populations increase[s] likelihood of desired health outcomes and are consistent with the current professional knowledge
  - d. Improved efficiency of medical services in providing treatment and medications

**Rationale:** The National Academy of Medicine (NAM) defines quality of care as the degree to which health services for individuals and populations increase[s] likelihood of desired health outcomes and are consistent with the current professional knowledge.

2. What do regulatory and accrediting bodies expect organizations to do with data obtained through measuring the quality of outcomes? Select all that apply.
  - \*a. Identify and prioritize processes that support clinical care
  - \*b. Demonstrate an attempt to improve performance
  - \*c. Benchmark their results with results from similar organizations
  - d. Identify the best performing employees

**Rationale:** The data obtained through measuring the quality of outcomes must be used to identify and prioritize processes that support clinical care, demonstrate efforts to improve performance, and benchmark and share results with similar organizations.

The data is not used to assess the performance of employees.

3. If a performance measure is measuring what it is supposed to, it is said to have a high
  - a. Sensitivity
  - b. Specificity
  - \*c. Validity
  - d. Reliability

**Rationale:** Validity refers to whether the performance measure actually measures what it says. Sensitivity of a performance measure refers to its ability to identify true cases (i.e., determine the likelihood of a positive test when a condition is present). Specificity of a performance measure is the likelihood of a negative test when the parameter is not present. Reliability refers to reproducibility of results (i.e., the indicator measures the same attribute consistently across the same patients and across time).

4. A checklist to identify injury due to fall in postoperative patients is found to be 99% sensitive. Given this information, which of the following statements about the checklist are true? Select all that apply.
- \*a. The checklist identifies most of the cases of injury due to fall in postoperative patients.
  - b. The number of false positives reported is high.
  - c. The checklist has a high specificity.
  - \*d. The number of false negatives reported is low.

**Rationale:** The checklist has a sensitivity of 99%, which means that it correctly identifies most of the cases of injury due to fall in postoperative patients. Since the test has a high sensitivity, false negatives reported will be low. From the information provided, assessment of specificity of the checklist is not possible. The number of false positives reported will depend on the specificity of the test; since information regarding specificity is not provided, it is not possible to assess the number of false positives.

5. During an accreditation audit, the surgical postoperative ward of a hospital is found to have inadequate nursing staff. This indicates lack of which of the nursing-sensitive indicators of quality care?
- \*a. Structure
  - b. Process
  - c. Outcome
  - d. Competence

**Rationale:** The nursing sensitive indicators of quality care include structure, process, and outcome. Structure relates to supply of nursing staff and their skill level. Process indicators measure aspects of nursing care, like assessment and intervention. Outcome indicators refer to patient outcomes that are nursing care sensitive, and include pressure ulcers, falls, intravenous infiltrations, etc. Competence indicators include collaboration with other professionals, decision-making, and the ability to practice ethically.

6. Performing a fall risk assessment on a patient at the time of admission can reduce fall rates. What is the process measure and the outcome measure in this statement?
- a. Performing fall risk assessment (outcome measure); reduction in fall rates (process measure)
  - b. Time of admission (process measure); performing fall risk assessment (outcome measure)
  - \*c. Performing fall risk assessment (process measure); reduction in fall rates (outcome measure)
  - d. Time of admission (outcome measure); performing fall risk assessment (process measure)

**Rationale:** Outcome measures are a change in the health of an individual or a group of individuals that are attributable to an intervention. In this case, fall rates are outcomes indicators. Other examples of outcome indicators are mortality rates, readmission, and patient satisfaction. Process measures capture aspects of care provision like performing the fall risk assessment for patients at the time of admission. Time of admission is not a performance measure.

7. A geriatric care hospital has initiated the process of establishing standards of excellence in care for older adults and comparing its existing geriatric care process with these standards. What are the advantages of this process? Select all that apply.
- \*a. Helps set performance expectations
  - \*b. Identifies performance gaps
  - \*c. Leads to technological upgradation
  - \*d. Develops a standardized set of procedures

**Rationale:** The process of establishing standards of excellence (using performance standards of the leading organizations in the field) and comparing existing processes with these standards is known as benchmarking. The process helps set performance standards or the outcome measures to be achieved, helps identify performance gaps, develops a standardized set of procedures, and leads to technological upgradation, as required to meet set standards.

8. Which of the following are qualities of a good performance measure? Select all that apply.
- \*a. Validity
  - \*b. Clearly defined
  - \*c. Reliability
  - \*d. Sensitivity

**Rationale:** Validity, a clear definition, reliability, and sensitivity are all qualities of a good performance indicator. Validity refers to whether the performance measure actually measures what it says. A performance measure must have a clear definition that specifies what data elements have to be collected. Reliability refers to reproducibility of results (i.e., the indicator measures the same attribute consistently across the same patients and across time). Sensitivity of a performance measure refers to its ability to identify true cases (i.e., determine the likelihood of a positive test when a condition is present).

9. Which of the following are the 4Ms of a friendly health system? Select all that apply.
- a. Money
  - \*b. Medication
  - \*c. Mentation
  - \*d. Mobility

**Rationale:** The four elements or the 4Ms of a friendly health system are medication (i.e., use of medication that does not interfere with mentation, mobility, and what matters); mentation (i.e., prevention, identification, and management of delirium, dementia, and depression across care settings); mobility (i.e., ensuring older adults can move safely to maintain function and do what matters); and what matters (i.e., alignment of patient goals with preferences). Money is not included as an element of a friendly health system.

10. Which of the following are important steps while developing in-house performance measures of quality care? Select all that apply.
- \*a. Identify the population to be included
  - \*b. Identify and define data elements
  - c. Reinvent performance measures
  - \*d. Test the data collection process

**Rationale:** Identification of the population, identification and defining of data elements, and testing the data collection process are important steps in developing in-house performance measures of quality care. Reinventing performance measures, especially when good reliable performance measures are already available, is not recommended.

## Chapter 3: Informational Technology: Embedding Geriatric Clinical Practice Guidelines

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### Multiple Choice Test Questions

1. Electronic health record (EHR) is defined as:
  - a. a portable, handheld computer with the ability to document patient details directly on the screen with a stylus.
  - b. a software capable of voice recognition systems to document patient details.
  - c. a record of prescriptions provided by the clinician.
  - \*d. a software with a full range of functionalities to store, access, and use medical information.

**Rationale:** Electronic health record (EHR) is a systemized collection of all patients' information and data, using a software that stores all the information, and makes it easily accessible and retrievable for use.

EHR is not a portable handheld computer; it is a software that can be accessed through any computer or mobile device by authorized personnel.

Electronic health record software may have a voice recognition property; however, it also has many other features for documenting, storing, analyzing, and easy accessibility of medical information.

Clinician prescriptions are a part of the data stored by EHR; it is a complete software for storing all patient-related information in a digital format.

2. Which of the following statements regarding computerized provider order entry (CPOE) are correct? Select all that apply.
  - \*a. CPOE ensures prescribing providers have access to patients' allergy information.
  - \*b. CPOE supports providers in judicious use of medications potentially inappropriate for older adults.
  - c. CPOE guides the care provider in differential diagnosis of the patient's condition.
  - \*d. CPOE ensures patients receive appropriate dosage of medications.

**Rationale:** Computerized provider order entry (CPOE) is defined as "the provider's use of computer assistance to directly enter medication orders from a computer or mobile device." It is an important component of electronic health records (EHRs). CPOE ensures prescribing providers have access to patients' allergy information, and supports providers in judicious use of medications potentially inappropriate for older adults. CPOE also ensures that patients receive appropriate dosage of medications based on their weight, renal function, and other clinical situations. CPOE has no role in diagnosis of the patient's condition.

3. An algorithm for risk assessment for developing pressure ulcers in geriatric patients is embedded in the nursing assessment part of the EHR. This is an example of a:
- a. Computerized provider order entry
  - \*b. Clinical decision support system
  - c. Dashboard
  - d. Electronic medical record

**Rationale:** A clinical decision support system (CDSS) is a feature of electronic health records (EHRs) that helps clinicians analyze and reach a diagnosis based on patient data. It provides direction to the clinician regarding what needs to be assessed. Embedding an algorithm for risk assessment of pressure ulcers in the EHR is an example of CDSS, as this ensures that none of the patients are missed and the information obtained guides the clinician in decision-making. Computerized provider order entry (CPOE) is a component of EHRs and is defined as "the provider's use of computer assistance to directly enter medication orders from a computer or mobile device." Instructions regarding medications, laboratory, and radiology investigations are sent via a computer application rather than paper, fax, or telephone. A dashboard is a system homepage that provides a holistic view of the entire system. It can be customized to summarize information relevant to a particular clinical situation, and provide quick access to the required data. Dashboards can also represent information in a tabulated or graphical manner. Electronic medical record is a digital version of a patient's medical information from one provider.

4. Which of the following are advantages of implementing electronic health records? Select all that apply.
- \*a. Promotes legible, complete documentation of patient information
  - \*b. Includes a clinical decision support system that assists in diagnosis
  - \*c. Provides electronic alerts for appropriate medication dosage based on patient-specific conditions
  - \*d. Enables quick access to patients' records for more coordinated, efficient care

**Rationale:** An electronic health record (EHR) is a systemized collection of all patients' information and data, using software that stores all the information, and makes it easily accessible for use. It provides legible, complete documentation of patient information. The clinical decision support system (CDSS) is a feature of the EHR that helps clinicians analyze and reach a diagnosis based on patient's data and provides direction to the clinician regarding what needs to be assessed. Electronic reminders through EHR can identify and present appropriate medicine dosage recommendations based on patient-specific conditions and characteristics at the time of ordering.

EHR enables storage of all patient data in an electronic form, enabling quick access and retrieval of this data when required.

5. The geriatric nurse consultant of a hospital notices that data regarding different assessments of a patient, conducted at the time of admission, are presented in a fragmented manner at different locations in the electronic health record (EHR). Which of the following would be an effective solution for this problem?
- a. Periodic training of staff who uses EHR
  - b. Set up EHR electronic alerts
  - \*c. Create a dashboard
  - d. Update EHR software

**Rationale:** The problem of data being presented in a fragmented manner in the EHR can be solved by creating a dashboard, which is a customized user interface that summarizes information relevant to a particular clinical situation and provides quick access to the required data. In this case, the dashboard can be customized to show results of all assessments of a patient done at the time of admission, on the main system homepage. Periodic training of the staff will not help solve the issue of fragmented data presentation. Setting up EHR electronic alerts will not be helpful in this case; alerts or reminders can be set up to ensure no assessment is missed by the nursing staff. Updating EHR software will not solve the issue of fragmented data presentation; a new customized user interface or dashboard needs to be created for this purpose.

6. The geriatric care unit of a hospital decides to set up a comprehensive geriatric care dashboard as a part of the EHR system. Who should be part of the multidisciplinary team to create this dashboard? Select all that apply.
- \*a. Clinicians and nursing professionals
  - \*b. Clinical informaticists
  - \*c. Clinical documentation specialists
  - d. Application developer

**Rationale:** The clinicians and nursing professionals will be a part of the team to create the dashboard, as they will be using the dashboard on a daily basis; and thus their inputs are important. Clinical informaticists and clinical documentation specialists must be included in the team for development of an EHR dashboard. Clinical informaticists are specialists in information technology and its application in the field of healthcare. They ensure that medical records and data are structured in an effective manner and can be easily retrieved and used, as and when required. Clinical documentation specialists are responsible for organization and management of clinical data and documents. They ensure organization, accuracy, and quality in documentation of medical records.

An application developer creates and tests application software for computers. The multidisciplinary team to create an EHR dashboard does not usually require an application developer.

7. Which of the following information can be found in a patient's Electronic Health Record (EHR)? Select all that apply.

- \*a. Allergies
- \*b. Family history
- \*c. Present medications
- \*d. Last time the patient visited the hospital

**Rationale:** An electronic health record (EHR) is a systemized collection of all patient information and data using a software that stores all information, and makes it easily accessible for use. Information regarding allergies, family history, present medications, and details of the patient's last visit to the hospital can all be found in the patient's EHR.

8. Which of the following are disadvantages of implementing electronic health records (EHRs)? Select all that apply.

- \*a. Cost of implementation
- \*b. Ongoing maintenance cost
- c. Decreased communication between the provider and the patients
- \*d. Risk of patient privacy violation

**Rationale:** The cost of EHR adoption and implementation, involving a high upfront initial investment, is one of the major drawbacks of EHR. Maintenance cost of EHR is also high, as the hardware must be replaced and the software must be upgraded on a regular basis. Risk of patient privacy violations is a major disadvantage of EHR. Implementation of EHR improves communication between the healthcare providers and the patients.

9. What are the major steps in the development of an EHR dashboard? Select all that apply.

- \*a. Identification of the problem
- \*b. Identification of the key stakeholders
- \*c. Discussion and finalization of specific components of display of the dashboard
- d. Obtaining and saving patient-related data

**Rationale:** A dashboard is a system homepage that provides a holistic view of the entire system. It can be customized to summarize information relevant to a particular clinical situation and provide quick access to the required data. Major steps in the development of a dashboard include identification of the problem and identification of key stakeholders such as end-users or personnel who would use the dashboard, a clinical informaticist, and a clinical documentation specialist. The next step involves discussion among stakeholders to finalize specific components of the dashboard display. Obtaining patient data is not required for development of the EHR dashboard. It is required to assess the functionality of the dashboard once the initial version is finalized and put to use.

10. Some studies have found implementation of EHR to be associated with increased medical errors. What could be the major reasons for this? Select all that apply.
- a. Poor internet connectivity
  - \*b. Poorly designed EHR system interface
  - \*c. Lack of end-user training
  - d. Decreased doctor–patient communication

**Rationale:** A poorly designed EHR system interface may lead to problems like improper workflow, inability to view or share patient information, and incorrect drug alerts, which may result in medical errors. Lack of end-user training also affects proper and correct use of EHR, leading to errors. Poor internet connectivity may affect access to EHR data but should not cause medical errors. EHR improves doctor–patient communication; thus, this should not be a reason for increased medical errors.

## Chapter 4: Organizational Approaches to Promote Person-Centered Care

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### Multiple Choice Test Questions

1. Which of the following are essential elements of person-centered care? Select all that apply.
  - \*a. Preference-based, holistic care plan including personal and social goals
  - \*b. Open dialogue between patients, families, and providers
  - \*c. Evolving caregiver team including the patient and the family
  - \*d. Identifying a primary contact person and team leader to ensure continuity of care

**Rationale:** There are eight essential elements of person-centered care: a personalized care plan, care plan assessment, interdisciplinary team-based care, a team leader, care coordination, constant communication, continuing education, and measurable outcomes. A personalized care plan includes a preference-based, holistic plan including personal and social goals. Constant communication means an open dialogue between patients, families, and providers in person and through the electronic health record. An interdisciplinary team-based care comprised of an evolving caregiver team, including the patient and family members, is also an important element of person-centered care. A team leader and a primary contact person are identified to ensure continuity of care.

2. Which of the following is an example of shared decision-making?
  - a. The nurse and primary care staff formulate a treatment plan for the patient.
  - \*b. The clinician explains the risks and benefits of a procedure to the patient and the family members.
  - c. The patient selects and approves a treatment option based on the patient's preferences and personal beliefs.
  - d. The multidisciplinary team of medical experts decides on the intervention and communicates it to the patient and family members

**Rationale:** Shared decision-making is a process whereby clinicians collaboratively help patients reach evidence-informed and value-congruent medical decisions. It is a process in which clinicians and patients work together to make decisions and select tests, treatment, and care plans based on clinical evidence, balancing risks, and expected outcomes with patient preferences and values. The clinician explaining the risks and benefits of a procedure to the patient and the family members constitutes shared decision-making. The nurse and primary care staff formulating a treatment plan for the patient, the patient selecting a treatment option based on his or her preferences and beliefs, and a team of medical experts deciding on an intervention and communicating it to the patient and family members are all scenarios that are not examples of shared decision-making.

3. Which of the following nursing strategies represent patient-centered care? Select all that apply.
- \*a. Assessment of patient preferences
  - \*b. Engaging the patient in assessment, planning, and evaluation of treatment/care plan
  - \*c. Knowing the patient by using the “all about me” approach
  - d. Encouraging caregivers to make decisions for the patient

**Rationale:** The assessment of patient preferences and promoting congruence between preferences and care provided; involving the patient in assessment, planning, and evaluation; and knowing the patient by using the “all about me” approach are nursing strategies based on patient-centered care. The family members and caregivers must be encouraged to participate in the treatment plan; however, making decisions on behalf of the patient does not represent patient-centered care.

4. The Eden Alternative model, which is a culture change model of long-term care, involves which of the following strategies?
- a. Transformation of primary care toward improving patient and informal caregiver experiences, outcomes, and interactions with the healthcare system
  - \*b. Improving lives of older adults by decreasing loneliness, helplessness, and boredom by creating elder-centered communities
  - c. Transformation of long-term and postacute care settings to smaller scale, homelike settings focused on improving quality of life and engaging in meaningful relationships
  - d. Shifting long-term care to person-directed practices

**Rationale:** The Eden Alternative model aims to improve the lives of older adults by decreasing loneliness, helplessness, and boredom by creating elder-centered communities. The Patient-centered Medical Home Model of care is aimed at transformation of primary care toward improving patient and informal caregiver experiences, outcomes, and interactions with the healthcare system. The Green House project is based on transformation of long-term and postacute care settings to smaller scale, homelike settings focused on improving quality of life and engaging in meaningful relationships. The Pioneer Network, recognized as the national leader of the culture change movement in long-term care, is based on shifting long-term care to person-directed practices.

5. Which of the following are recommended for providing patient-centered care to people with dementia? Select all that apply.
- \*a. Knowing and understanding the person with dementia
  - b. Building authentic relationships by doing all tasks for the person with dementia
  - \*c. Creating and maintaining a supportive community for individuals and families
  - \*d. Evaluating care practices regularly and making appropriate changes

**Rationale:** Knowing and understanding the person with dementia, creating and maintaining a supportive community for individuals and families, and evaluating care practices regularly and making appropriate changes are recommendations for providing patient-centered care to people with dementia. To build and nurture authentic, caring relationships with a person with dementia, it is important to focus on doing all tasks “with” the patient rather than doing all tasks “for” the patient. Thus, the focus should be on interaction with the patient, rather than mere completion of tasks.

6. A 68-year-old male patient is diagnosed with Type 2 diabetes. His HbA1C index is 7.5%. The clinician prescribes Metformin and educates the patient regarding importance of lifestyle changes (dietary modifications and physical activity) in diabetes control. The patient insists that he does not want to take medications and wants to control blood sugar levels with lifestyle modifications. What should be the clinicians next steps based on person-centered care? Select all that apply.
- a. Convince the patient to start Metformin by explaining the risks
  - b. Counsel the family members on the importance of medication, and ask them to convince the patient
  - \*c. Conduct an evidence-based review of whether proceeding with only lifestyle modifications is acceptable
  - \*d. Ensure the patient and family members are educated regarding the risks involved

**Rationale:** An important aspect of person-centered care is to respect patient choices and preferences. In this case, an evidence-based review must be conducted to assess if the patient's preference of avoiding medication and incorporating only lifestyle modifications for diabetes control can be accepted. The results of the evidence-based literature review must be shared with the patient, and any risks involved must be explained to the patient and the family members. Convincing the patient to start medications by merely explaining the risks, or asking the family members to convince the patient is not appropriate person-centered care.

7. Which of the following are essential domains of person-centered care? Select all that apply.
- \*a. Engagement facilitators
  - \*b. Enacting humanistic values
  - \*c. Communication
  - \*d. Living environment

**Rationale:** The essential domains of person-centered care include engagement facilitators, like family and friends involvement in care and activities; enacting humanistic values, which means supporting autonomy and empowering individuals; communication; and a homelike living environment.

8. Which of the following are examples of the progressive patient care model? Select all that apply.
- \*a. Assigning levels of care to patients using a numerical rating scale
  - b. Improving patient flow by redefining roles of healthcare team members
  - \*c. Grouping patients as outpatient and inpatient surgical cases
  - \*d. Stratifying inpatient surgical candidates based on expected length of stay

**Rationale:** Assigning levels of care to patients using a numerical rating scale, grouping patients as outpatient and inpatient surgical cases, and stratifying inpatient surgical candidates based on expected length of stay in the hospital are all examples of the progressive patient care model. Improving patient flow by redefining roles of healthcare team members is an example of the lean approach.

9. Which of the following changes are essential to move acute care facilities toward person-centered care? Select all that apply.
- \*a. Organizational models of care delivery
  - \*b. Patient care needs
  - \*c. Physical space
  - \*d. Nursing model of care delivery

**Rationale:** Changes required to modify acute care facilities and move these toward person-centered care include organizational and nursing model of care delivery, patient-care needs, and appropriate physical space.

10. Which of the following are Eden domains of well-being? Select all that apply.
- \*a. Security
  - \*b. Identity
  - c. Financial independence
  - d. Empathy

**Rationale:** The Eden alternative is shaped by a framework of seven domains of well-being: security, identity, growth, autonomy, connectedness, meaning, and joy. Financial independence and empathy are not included in the Eden domains of well-being.

## Chapter 5: Environmental Approaches to Support Aging-Friendly Care

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### Multiple Choice Test Questions

1. Which of the following are examples of suffering due to improper physical environment in hospitalized older adults? Select all that apply.
- \*a. Sleep disturbances
  - b. Delirium
  - \*c. Falls
  - \*d. Infection

**Rationale:** Hospitalized older adults can suffer from sleep disturbances, falls, and infections due to inappropriate physical environment in hospitals. Delirium is not caused by an improper physical environment; however, the physical environment can ease or aggravate the condition.

2. Which of the following is an intrinsic risk factor that can lead to falls in older adults?
- a. Nursing practices
  - b. Medication
  - \*c. Mobility
  - d. Environment

**Rationale:** Mobility of a hospitalized older adult is an intrinsic factor that can lead to fall accidents. Nursing practices, medication, and environment are extrinsic factors that can also lead to fall incidents in hospitalized older adults.

3. Which of the following are physical environmental strategies that are effective in preventing infection transmission? Select all that apply.
- \*a. Single occupancy rooms
  - \*b. Electronic reminders for hand cleaning
  - \*c. Air filtering
  - d. Installation of grab bars

**Rationale:** Single occupancy rooms, electronic reminders for hand cleaning, and air filtering are physical environmental strategies effective in preventing transmission of infection. Installation of grab bars is a physical environmental measure to prevent falls.

4. Which of the following are examples of positive distraction therapy? Select all that apply.
- \*a. Windows of hospitalized patients overlooking a garden
  - \*b. Nature sounds before, during, and after a bronchoscopy procedure
  - \*c. Exposure to bright sunlight after a surgical procedure
  - \*d. Involvement in a gardening activity

**Rationale:** Positive distraction therapy refers to the predisposition of human beings to respond well to natural surroundings. Positive distractors are defined as environmental or social conditions marked by a capacity to restore mental health by distracting an individual's attention away from internal and external stressors to a more restorative state of mind. Thus, windows of hospital patients overlooking a garden; nature sounds before, during, and after a bronchoscopy procedure; exposure to bright sunlight after a surgical procedure; and involvement in a gardening activity are all examples of positive distraction therapy.

5. Which of the following interventions are recommended to minimize disturbance due to sound in the hospital room of an older adult? Select all that apply.
- \*a. Applying wall and door insulation
  - \*b. Using sound-absorbing finished surfaces
  - c. Issuing a quiet protocol for staff conversations
  - d. Providing ear plugs to patients

**Rationale:** Applying door and wall insulation and using sound-absorbing finished surfaces are effective interventions that can be used to minimize disturbances due to sound in the hospital rooms. A quiet protocol for staff conversations and use of ear plugs are only secondary solutions and are not effective in the long term as these add additional steps for staff and patients and potentially interfere with care.

6. Which of the following nursing care factors can enhance a patient's perception of dignity, respect, and identity? Select all that apply.
- \*a. Allowing patients to put up personal photographs in the room
  - \*b. Allowing personal belongings in hospital/facility care rooms
  - c. Enforcing strict visiting hours for family members
  - \*d. Allowing personal furniture items in rooms in a care facility

**Rationale:** Environments that encourage personalization also facilitate dignified care. Interventions like allowing patients to decorate their rooms with personal photographs and allowing personal belongings and furniture, especially in long-term care facilities, can enhance the patient's sense of dignity and identity and also lead to better connection between the staff and the patients. Strict visiting hours for family members can lead to anxiety and loneliness.

7. Which of the following is the most fundamental need of a hospitalized older adult?
- a. Respect
  - b. Dignity
  - c. Relief from symptoms
  - \*d. Safety

**Rationale:** Safety is the most fundamental need of a hospitalized older adult. This includes fall reduction, infection prevention, security, and reduced errors in treatment. Management of symptoms is the next fundamental need; this includes pain management, anxiety management, and improving sleep and mobility. The most complex needs are a sense of dignity and respect, including privacy, sense of self-worth, and meaningful experiences.

8. Which of the following are clinical factors that can influence patient outcome?
- \*a. Medical care
  - b. Sensory function
  - c. Genetics
  - d. Duration of hospital stay

**Rationale:** Medical care is a clinical factor that can influence patient outcome. Sensory function, genetics, and attitude are individual personal characteristics that also influence patient outcome. Duration of hospital stay is not a clinical factor, but an indicator of the clinical factors affecting patient outcome.

9. Which of the following interventions can reduce incidents of falls in hospitalized older adults? Select all that apply.
- \*a. Eliminating flooring material transitions
  - \*b. Installing handrails and grab bars
  - \*c. Providing open circulation pathways
  - \*d. Minimizing site tripping obstacles

**Rationale:** Adopting aging friendly design strategies like eliminating flooring material transitions, installing handrails and grab bars, providing open circulation pathways, and minimizing site tripping obstacles can reduce incidents of falls in hospitalized older adults.

10. Which of the following indicators can be used to assess clinical factors influencing patient outcomes? Select all that apply.
- \*a. Use of medications
  - b. Blood pressure
  - \*c. Duration of stay in the hospital
  - d. Pain

**Rationale:** Use of medications and duration of stay in the hospital are indicators of clinical factors influencing patient outcomes.

Blood pressure indicates a physiological factor, whereas pain is an indicator of experiential factors of patient outcome.

## Chapter 6: Age-Related Changes in Health

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### Multiple Choice Test Questions

1. A 76-year-old male patient visits the clinician with complaints of fatigue, weakness, weight loss, and difficulty in climbing stairs. He has difficulty using scissors and holding coffee mugs and other items in his hands, with a tendency to drop these. The patient appears emaciated with loss of muscle mass. The clinician suspects this to be:
  - a. Osteoporosis.
  - b. Osteoarthritis.
  - \*c. Sarcopenia.
  - d. Kyphosis.

**Rationale:** Sarcopenia is defined as reduced muscle mass, decreased physical performance, and a weak grip strength, which occur due to a decline in size, number, and quality of skeletal muscle fibers with aging. As seen in this case, the patient has lost weight, is weak, and has difficulty holding objects in his hands. These symptoms raise suspicion of sarcopenia. Osteoporosis is a condition characterized by decreased bone density that results in bones becoming porous and weak, increasing the risk of fractures. Osteoarthritis is a chronic degenerative disease caused by loss of cartilage in joints, resulting in joint pain and stiffness. Kyphosis is a condition that results in an abnormal forward curvature of the spine.

2. A 91-year-old female patient visits the clinician with complaints of dizziness, abdominal pain, decreased appetite, and increased urinary frequency especially in the night, with urinary incontinence. On examination, she is found to be mildly dehydrated and confused in conversation. She has a history of coronary artery disease, hypertension, and arthritis and is on Tablet Tylenol and Aspirin 81 mg daily. The clinician's next action should be:
  - a. Conduct the Dipstick test.
  - \*b. Attempt to improve hydration and observe for 24–48 hours.
  - c. Start empiric antibiotic treatment.
  - d. Send urine sample for urine culture and urinalysis.

**Rationale:** The symptoms of dizziness, abdominal pain, decreased appetite, and increased urinary frequency in an elderly female raise suspicion of a urinary tract infection (UTI) as UTI in older adults may present with these atypical symptoms. She is also found to be dehydrated and confused. Since typical symptoms of UTI are not seen in this case, the clinician should attempt to improve hydration, as acute changes in mental status like confusion could be due to dehydration. Thus, oral or intravenous fluids are given, and the patient is observed for 24–48 hours. The urine dipstick test is not immediately recommended. If symptoms of confusion and change in urinary characteristics persist after 24–48 hours, a dipstick test is performed. If change in urinary characteristics and mental confusion does not improve after attempting rehydration, urine culture and urinalysis are conducted. If urine culture is positive, antibiotic treatment is recommended.

3. Which of the following conditions can result from age-related changes to the renal system? Select all that apply.
- a. Increase in glomerular filtration rate
  - \*b. Hypovolemia and dehydration
  - c. Decrease in serum creatinine
  - \*d. Impaired electrolyte and water management

**Rationale:** The normal aging process results in the decline of the kidney mass with a loss of functional glomeruli and tubules, and a reduction in blood flow. Sodium wasting or excess sodium excretion can occur with diarrhea, resulting in hypovolemia and dehydration. Diminution in maximal urine concentrating ability and blunted thirst sensation and total body water together lead to dehydration and hypernatremia, thus increasing the risk of impaired electrolyte and water management in older adults. Reduction in kidney mass along with changes in the activity of regulatory hormones like vasopressin, atrial natriuretic hormone, and the renin–angiotensin–aldosterone system results in decreased glomerular filtration rate. Serum creatinine levels remain unchanged despite an age-associated decline in glomerular filtration rate because of the parallel decrease in older adults’ skeletal muscle mass, which produces creatinine and glomerular filtration rate for creatinine elimination.

4. A 70-year-old male patient visits the clinician for a routine medical check-up. During auscultation, an extra heart sound is heard immediately before the normal S1 and S2. What could be the reason for this extra heart sound?
- a. Right ventricular and atrial hypertrophy
  - b. Sclerosis of atrial and mitral valves
  - c. Arterial wall thickening and stiffening
  - \*d. Atrial contractions in diastole

**Rationale:** An extra heart sound, S4, is heard immediately before the normal heart sounds S1 and S2 in the elderly; this is due to atrial contractions in diastole. S4 heart sound does result from right atrial and ventricular hypertrophy. Sclerosis of atrial and mitral valves causes improper closure of these valves resulting in aortic regurgitation or mitral stenosis, which present as heart murmurs. Arterial wall thickening and stiffening can result in occlusive arterial disease, resulting in a bruit on examination.

5. A 75-year-old male patient visits the clinician with complaints of increasing fatigue, shortness of breath on walking but not on rest, and sleepiness for the past several months. Physical examination shows a diminished chest wall movement, and his abdomen does not rise on inspiration. Pulmonary function tests show a reduced lung volume and inability to sustain a maximal breathing effort. Blood carbon dioxide is high and blood oxygen is low. The clinician concludes this to be:
- a. Heart failure.
  - \*b. Chronic respiratory failure.
  - c. Angina pectoris.
  - d. Emphysema.

**Rationale:** The symptoms of the patient are typical of chronic respiratory failure, probably due to neuromuscular weakness as indicated by diminished chest wall movement and failure of the abdomen to rise, which indicates diaphragmatic weakness. Inability to sustain a maximal breathing effort indicates respiratory muscle weakness. Heart failure is associated with a sudden severe shortness of breath, chest pain, and palpitations. The patient, in this case, has diminished chest wall movement and diaphragmatic weakness, which raises suspicion of respiratory failure. Further investigations including chest radiograph, electrocardiogram, and blood investigations are required to reach a final diagnosis. Angina is characterized by chest pain with a pressure, squeezing, or heaviness in the chest, with the pain radiating to the arms, neck, jaw, and/or the back. Emphysema is a type of chronic obstructive lung disease, involving loss of elasticity and enlargement of the air sacs in the lungs. Main symptoms in emphysema are chronic cough and shortness of breath; however, diminished chest wall movement and diaphragmatic weakness are usually not present.

6. Which of the following cognitive abilities decrease with age? Select all that apply.
- a. Crystallized intelligence
  - \*b. Declarative memory
  - \*c. Fluid intelligence
  - \*d. Divided attention

**Rationale:** Declarative memory is associated with learning new information, and it decreases with age. Fluid intelligence also decreases with age; it is related to creative reasoning and problem-solving. Divided attention, or the ability to concentrate on multiple tasks concurrently, decreases with age. Crystallized intelligence refers to information and skills acquired from experience, and it largely stays intact with age.

7. Age-related diminished gastric motility contributes to which of the following conditions in older adults? Select all that apply.
- \*a. Altered oral drug passage time and absorption in the stomach
  - \*b. Decreased postprandial hunger
  - \*c. Elevated risk of gastroesophageal reflux
  - d. Diverticulitis

**Rationale:** Age-related diminished gastric motility leads to delayed emptying of the stomach, resulting in altered oral drug passage time and absorption in the stomach, decreased postprandial hunger, and elevated risk of gastroesophageal reflux. Diverticulitis is caused by decreased motility of the large intestine and is not due to diminished gastric motility.

8. A 79-year-old male patient is brought to the emergency department of a hospital by his daughter, who found him lying on the floor, confused and incontinent of urine. She reveals that the patient had productive cough and weakness for the past three days, but is otherwise independent with activities of daily living and is ambulatory. There is no history of any such episode in the past. On examination, he is found to be severely dehydrated, and auscultation reveals rales and wheeze. Chest x-ray appears normal. He has a history of rheumatoid arthritis and hypertension and takes 325 mg Tylenol and 81 mg Aspirin daily. Which of the following is the most appropriate initial treatment?
- a. Assess mental status using Mini-Mental State Examination (MMSE)
  - b. Administer intravenous antibiotics
  - \*c. Administer intravenous fluids to improve hydration
  - d. Start 1 mg Ativan three times a day

**Rationale:** The patient has a history of cough, and examination reveals rales and wheezing; these symptoms raise suspicion of pneumonia or respiratory tract infection. The patient is found to be severely dehydrated. In older adults, pneumonia may present as lethargy, dehydration, and new-onset confusion. Chest x-ray may not show infiltrates or consolidation, and these findings may appear only after hydration. Thus, appropriate initial treatment in this case is to administer intravenous fluids to improve hydration. Once hydration improves, cognitive assessment using Mini-Mental State Examination (MMSE) can be done. Intravenous antibiotic should be given only after diagnosis is established. Ativan should not be started immediately; any decision to administer Ativan should be taken after a detailed neurological examination and after obtaining details of existing illnesses and medications.