



# Sample Exam Questions

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Practice questions to help familiarize you with the EDAC exam.

## About EDAC

EDAC (Evidence-based Design Accreditation and Certification) is an educational and assessment program that tests individuals on their understanding of how to base healthcare building design decisions on credible research evidence and project evaluation results.

The goal of the program is to test individuals on their knowledge of the process to follow in order to identify, hypothesize, implement, gather, and report the data associated with their project.

## Mission and Vision

Our mission is to develop a community of accredited industry individuals through education and assessment of an evidence-based design process. Our vision is a world where all healthcare environments are created using an evidence-based design process.

## About the Exam

The EDAC examination consists of 110 multiple-choice questions (100 scored and 10 pretest). Pretest items are not scored and are included to gather statistics for their use on future examinations. Candidates will have 2 hours to complete the exam. Every question (or statement) on the exam should be read carefully to avoid selecting the wrong answer based on a misread question. The answer is the most appropriate choice of all the possible responses.

The examination covers five sections in the detailed content outline (DCO): Evidence-Based Design for Healthcare; Research; Predesign; Design; Construction and Occupancy. Use the DCO, found on the EDAC website, as a reference guide to study for the exam.

## Types of Questions

**Recall:** Requires candidates to draw from memorized facts; the correct response was previously learned. They do not vary with the situation. These questions are one sentence, containing one variable.

**Application:** Causes candidates to interpret, classify, translate, or recognize relationships. The correct answer varies with the situation. These questions are moderate in length and are a couple sentences with more than one variable.

**Analysis:** These questions contain information that require synthesis, problem solving, and selection of the best response. The question has correct answers that vary with the situation and candidates must act on a problem they identify from provided clues. This is the longest type of question.

EDAC is a program from The Center for Health Design,  
and the exam is administered by Applied Measurement Professionals.  
For additional information, please visit the EDAC website:

[healthdesign.org/edac](http://healthdesign.org/edac)

Please allow one hour to complete these  
50 sample questions.

----- BEGIN SAMPLE EXAM -----

1. The choice of data analysis tools depend on the research design and
  - a. research methodology.
  - b. funds available.
  - c. preferences of the researcher.
  
2. Historically, most healthcare organizations have thought of the physical building as a cost center. In EBD, the physical building is viewed as a
  - a. revenue center.
  - b. strategic investment.
  - c. minor part of the hospital experience.
  
3. During the commissioning phase of the EBD project, the project team
  - a. verifies that the building complies with the intent of the research plan, design interventions, and business case.
  - b. verifies that the installation and performance of systems is in line with design.
  - c. develops and uses a commissioning plan to evaluate requirements in construction documents.
  
4. A project manager is putting together recommendations for who should participate on the interdisciplinary project team. There is some disagreement about whether to invite one or more vendors to be on the team.

Which of the following would be most in line with an EBD approach to this issue?

  - a. Vendors should not be included because it may be difficult for them to maintain objectivity because they represent their own products.
  - b. Vendors who sit on the team may be in a position to offer substantial discounts on their products.
  - c. Vendors may provide insight and perspective regarding selection of appropriate products to meet project goals.

5. A summary of EBD research in an architectural magazine indicates that the type of flooring used is associated with a reduction in patient falls and decreased workplace injuries; while nursing floor layout is associated with a reduction in patient falls and increased staff satisfaction.

Given a limited budget, what should the organization do FIRST to determine where to invest its limited resources?

- a. Select the design feature that is most in line with the EBD vision.
  - b. Check the hospital statistics to see which of the two design features will result in a greater reduction in operating costs.
  - c. Conduct a critical review of the existing research before drawing any conclusions.
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6. The person or entity in the best position to shape the culture of the healthcare organization is the
  - a. medical staff.
  - b. hospital board.
  - c. CEO.
- 
7. A research team measured ambient noise levels in patient rooms, patient's stress levels, and the duration of visits by family and friends. They found that high ambient noise was associated with high patient stress and short family visits.

This is an example of which type of study?

  - a. Correlational
  - b. Retrospective
  - c. Experimental
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8. One of the members of the interdisciplinary project team, an experienced nurse, brought in a research report from a peer-reviewed journal that indicated that the efficiency of care provided by the nursing staff is influenced by the layout of patient rooms.

This team member argued that the bulk of the EBD budget be spent on this design feature. Therefore, the team MUST

  - a. allocate the bulk of the budget to patient room redesign, based on this evidence.
  - b. validate the research by finding hospitals that have shown an increase in staff efficiency based upon layout of patient rooms.
  - c. find evidence to support a wider range of EBD features before deciding how the budget should be allocated.

9. A hospital-based project team wants to make sure that the observation instrument they developed has a high degree of reliability. They should

- a. test it in a variety of settings both within and outside the hospital.
- b. have several researchers use it within a specified timeframe and place, with the same subjects and see if similar results are achieved.
- c. ask a team of expert researchers to validate that the instrument is measuring what it's supposed to measure.

10. A hospital project team wants to make sure that the survey instrument they developed on patient satisfaction has a high degree of external validity.

This means that they want the instrument to

- a. be useable in a variety of healthcare settings.
- b. generate results that are significant to  $p < .05$ .
- c. measure what it is supposed to measure.

11. In planning for the integration of new concepts and plans, what perspective should departments consider when exploring how technology, culture, process, and space can be used to streamline the flow of information, improve service quality, and achieve desired outcomes?

- a. User-oriented
- b. Systems-based
- c. Comprehensive

12. The project team at a long-term care facility found two peer-reviewed articles on the impact of outdoor garden space on resident's emotional expressiveness. One of these studies was conducted in a long-term care facility in Buffalo, New York, and the other in an assisted living facility in San Diego, California.

Unfortunately, the studies have conflicting results: the Buffalo study found that residents became more expressive, while the San Diego study found that residents became more introverted.

What should the team do next?

- a. Rely on the results of the study whose location is most like their own.
- b. Seek out additional research that can strengthen the evidence one way or the other.
- c. Interview each of the journal authors to determine why the results conflict.

13. Typically, the challenges to conducting a formal post-occupancy evaluation (POE) includes cost, the lack of consistent and reliable methodologies, lack of formal policies within the architectural firm for using POE information to improve subsequent projects, and the

- a. lack of researchers trained to conduct a POE.
- b. lack of knowledge about how to collect POE results.
- c. potential for bias when such a study is conducted by the firm that designed the building.

14. The new patient rooms at a hospital incorporated space for overnight visitors to promote social support for patients. Patients and visitors seemed happy with the new design.

Soon, though, problems started coming to the attention of hospital administrators: rooms no longer appeared to be adequately cleaned, laundry staff was working overtime, and the parking lot was always full. The CEO put "two and two" together and realized that the expanded patient rooms affected more than just the patients and their families.

As the project lead, what must you do upfront to make sure your team understands potential implications of a design intervention?

- a. Make sure that the perspectives and input of maintenance, laundry, and parking lot staff are all represented during focus group interviews.
- b. Ensure the project team members are aware of the potential impact of design decisions on the total environment of care.
- c. Measure the return-on-investment (ROI) to weigh the benefits of expanded patient rooms against the negative impact.

15. The key steps of an evidence-based design process includes all of the following EXCEPT

- a. collecting baseline performance measures.
- b. critically interpreting relevant evidence.
- c. developing original data collection instruments.

16. The team tasked with identifying opportunities for reducing healthcare-associated infections (HAIs) on a unit found that the nursing and medical staff had similar opinions about the reasons for HAIs, and similar recommendations: to double the number of posters showing guidelines for hand-washing.

The team should:

- a. go with this low-cost method of reducing HAIs.
- b. conduct a literature review to find out more about the benefits of hand washing.
- c. conduct a literature review to find design research on various proven strategies for reducing HAIs.

17. To speed up the design process, a consultant to the interdisciplinary project team suggested that they determine the basic design and space requirements of the patient rooms first, and concern themselves with the future operational plan later.

Which recommendation is MOST in line with an EBD process?

The operational plan should be designed

- a. first.
- b. following construction.
- c. concurrently with space requirements.

18. During the conceptual design phase, the interdisciplinary project team reviewed each proposed EBD feature to identify how the intervention aligned with the following Environment of Care components: stated goals and objectives (“concepts”), how it would impact patients, family, and staff (“people”), whether the new layout would affect the operational model (“layout and operations”), and how well the proposed features align with research-based physical environment features (“physical environment”).

What other Environment of Care components should the team evaluate alignment with?

- a. Implementation and staffing
- b. Systems and implementation
- c. Technology and culture

19. John, a member of the project team, wants to discuss the EBD goals with the construction contractor. Other team members feel that John would be getting in the way. As the project lead, you are asked for your recommendation.

Which recommendation is most in line with an EBD approach?

- a. There is no need to discuss the EBD goals with the construction manager because the research will take place after the construction phase.
- b. The detailed construction documents are sufficient for conveying the EBD goals to the construction manager.
- c. Educating the construction manager about the EBD goals will help ensure that unanticipated construction decisions stay in alignment with the goals.

20. During the schematic design phase of a project, the project team should review the “chain-of-logic” to document the link between evidence-based goals, available research findings, specific design interventions, and

- a. research hypotheses.
- b. the business case.
- c. The environment of care.

21. Constructing mockup environments provides an opportunity for users to test design concepts prior to making final design decisions.

This is MOST important because:

- a. it is the users who will make the final design decisions.
- b. it will help test design concepts prior to making final design decisions.
- c. helping to build the mock-up gets the users involved in the process.

22. As a project has progressed through the design and construction documents phase, design changes were made in alignment with the project goals and objectives that will increase construction and ongoing maintenance costs. These changes were approved by the hospital board.

What should the project team be sure to do, in line with an EBD approach?

- a. Update the business case and ROI documents to align with the changes.
- b. Remind the construction company that they must adhere strictly to the original design.
- c. Reduce costs in other areas so that the original ROI figures are maintained.

23. Once construction has begun, it is the role of the interdisciplinary project team to:

- a. train the construction workers in EBD goals and objectives.
- b. continuously monitor implementation to make sure it is compliant with the EBD features.
- c. make sure the researcher monitors alignment of the construction with EBD features.

24. During the commissioning of an EBD project, it is the role of the interdisciplinary project team to:

- a. hold a workshop to properly assign commissioning responsibilities.
- b. verify that the building complies with the intent of the research plan, design interventions, and the business case.
- c. conduct functional testing to verify that systems perform in accordance with project documents.

25. The proper time to conduct a post-occupancy analysis is:

- a. after construction, during the commissioning process.
- b. anytime after occupancy and on an ongoing basis.
- c. at least six months after occupancy.

26. The goal of this kind of research is to explain and predict phenomena by examining the relationships between empirically measured variables.

- a. Quantitative
- b. Qualitative
- c. Mixed methods

27. A design intervention with a good deal of research literature to support it would cause a budget overrun of approximately \$1,000,000, about 10% of the overall budget.

The intervention is in line with the visions, goals, and objectives of the CEO and the Board of Directors. Despite this, the Board is very hesitant to approve the additional funds. You determine that the design intervention would likely reduce overall operating costs by about \$100,000 per year.

Assuming a useful life of 20 years, which of the following recommendation would be in line with these figures?

The additional funds

- a. will be paid back within 20 years, and the design intervention will result in an overall savings of

\$2,000,000 over 20 years.

- b. will be paid back in 10 years, and the design intervention will result in an overall savings of \$1,000,000 over 10 years.
- c. represent too high of a budget overrun, and should not be approved.

28. A series of research studies conducted in Basil, Switzerland found that having windows that open in patients' rooms measurably improved air quality. A team of researchers in Chicago was unable to replicate the findings. Both studies were published in the same peer-reviewed journal.

Which of the following possible explanations would best account for the differences?

- a. The two research studies did not have the same level of rigor.
- b. The patients in the Swiss hospital may have been healthier to begin with.
- c. One or more confounding variables may have affected the results.

29. At what point in the process should a return-on-investment, and documentation of costs and benefits be conducted?

- a. Conceptual design
- b. Schematic design
- c. Design development

30. One of the patrons of the new wing of the children's hospital wants to donate funds for a music room where children can play with instruments.

The team has found evidence in a peer-reviewed journal that listening to certain kinds of music can reduce stress in patients. However, the music room will allow the children to both listen to and play all kinds of music.

In line with an EBD approach, the interdisciplinary team is tasked with conducting research on how the music room will impact patient outcomes. First they have to agree on the purpose and aims of the research.

Which of the statements below best represents the research purpose and aims?

- a. To identify whether having access to a music room reduces stress in children.
- b. To identify whether different kinds of music increases stress in children.
- c. To identify what impact playing and listening to different kinds of music has on children.

31. The first of the key steps in the EBD process is to:

- a. define EBD goals and objectives.
- b. develop a vision.
- c. develop a hypothesis.

32. The team has completed their research. Regardless of the results, what next step should they take, in accordance with an EBD process?

- a. Repeat the research immediately
- b. Write up and publish the results
- c. Revise hypotheses so that they are more in line with the obtained results

33. The goal of the business case for EBD is to determine how healthcare facility investments contribute to improvements in patient-care quality and the safety and satisfaction of both patients and staff while positively enhancing

- a. the bottom line.
- b. the physical design.
- c. workforce efficiency.

34. What person or group is responsible for recommending expenditures to enable the healthcare facility to meet community needs and/or shareholder value and what person or group is responsible for approving or disapproving the recommendation?

- a. Board of Directors, CEO
- b. CEO, Board of Directors
- c. CEO, government

35. A facility's Environment of Care defines its

- a. physical design.
- b. culture.
- c. outcomes.

36. Ideally, EBD research can be conducted during and after the construction and occupancy phases to

- a. develop hypotheses about how the design decisions may impact outcomes.
- b. evaluate the effectiveness of design solutions.
- c. alter parts of the design as it becomes clear whether or not decisions were appropriate.

37. Specific information about the built environment recorded over time and relative to patient and staff exposure during their time within that setting is needed to assert what kind of relationships between features of the built environment and outcomes?

- a. Theoretical
- b. Correlational
- c. Causal

38. Central to making the business case for physical design innovations one needs to balance ongoing operating savings and revenue enhancements with

- a. patient outcomes.
- b. one-time construction costs.
- c. longer design and construction timelines.

39. The EBD process can be integrated into which stage of the building design process?

- a. Predesign/design
- b. Construction
- c. Any

40. One kind of research usually originates from the need to solve a practical problem and is intended for direct and immediate applications to improve real life conditions. Another kind of research usually originates from curiosity and aims at creating new knowledge or adding to the existing knowledge.

What are these types of research, respectively?

- a. quasi-experimental, experimental
- b. basic, applied
- c. applied, basic

41. A group of researchers studied the effects of white noise on use of pain medication among patients in a noisy, inner city emergency ward.

Which is the independent, and which the dependent variable?

- a. Ambient noise (independent), use of pain medication (dependent)
- b. Use of pain medication (independent), white noise (dependent)
- c. White noise (independent), use of pain medication (dependent)

42. The key steps of the evidence-based design process should be implemented through the lens of the project vision, the business case, and the

- a. hospital administration.
- b. project goals and objectives.
- c. hospital staff.

43. What will help to systematically organize thoughts and ideas and outline activities before time, money, and efforts are invested? The development of the research

- a. tools.
- b. plan.
- c. hypothesis.

44. A positive correlation between two variables occurs when one variable

- a. decreases while the other variable increases.
- b. increases while the other variable increases.
- c. increase while the other variable decreases.

45. During the data collection phase, researchers do all of the following EXCEPT

- a. implement the research plan.
- b. collect and record data.
- c. analyze the data.

46. By concurrently addressing multiple perspectives during all phases of the project, the team can establish alignment between design interventions, the budget, and the

- a. project vision.
- b. community of users.
- c. project plan.

47. These are variables that are not under the control of the experimenter, which make it difficult to isolate cause and effect because they vary systematically from the independent variable, are called

- a. confounding variables.
- b. extraneous variables.
- c. contradictory variables.

48. Part of the development of a strategic facilities plan is to assess the current processes at a macro level and collect data on what level of performance within the organization?

- a. Past
- b. Current
- c. Anticipated

49. To provide a consistent evaluation method, these should be tested against the project's guiding principles to determine whether the design addresses its original goals:

- a. hypotheses
- b. schematic diagrams
- c. design concepts

50. This first term defines the extent to which a tool measures what it is supposed to measure, while this second term defines the degree to which a tool produces consistent or similar results on the same phenomenon at different times or when used by different people. These terms are:

- a. reliability, validity
- b. validity, generalizability
- c. validity, reliability

----- END OF SAMPLE EXAM -----

Answer Key	
1. a	11. b
2. b	12. b
3. a	13. c
4. c	14. b
5. c	15. c
6. c	16. c
7. a	17. c
8. c	18. b
9. b	19. c
10. a	20. a
	21. b
	22. a
	23. b
	24. b
	25. c
	26. a
	27. b
	28. c
	29. c
	30. c
	31. a
	32. b
	33. a
	34. b
	35. b
	36. b
	37. c
	38. b
	39. c
	40. c
	41. c
	42. b
	43. b
	44. b
	45. c
	46. a
	47. a
	48. b
	49. c
	50. c