



NÚMERO DE INSCRIÇÃO DO CANDIDATO: _____

TIME: 70 minutes

This test measures your ability to comprehend written materials.

DIRECTIONS:

Read the passage carefully and, for each question, choose the one best answer (A), (B), (C) or (D) based on what is stated in the passage or on what can be inferred from the passage. Then mark the letter on your answer sheet that matches the letter of the answer that you have selected. (5 points each correct answer)

Quality of Cardiovascular Care in 2024

By Rushi Patel, David E Winchester

- 1 Cardiovascular disease remains the leading cause of death worldwide, requiring innovative quality improvement (QI) strategies to improve patient outcomes and healthcare delivery. While early QI efforts focused on immediate clinical gaps, they have evolved into systematic, evidence-based approaches supported by continuous feedback. This shift reflects a broader effort to streamline care and improve outcomes across the cardiovascular spectrum.
- 2 Despite advances in research, delays often occur between the publication of clinical guidelines and their implementation in practice. This gap is particularly evident in heart failure with preserved ejection fraction (HFpEF), a condition historically difficult to treat due to limited effective therapies. For years, management focused mainly on controlling comorbidities such as hypertension. A study by Riaz et al. examining medication trends from 2008 to 2020 revealed clear discrepancies between guidelines and real-world prescribing patterns.
- 3 Two trends stand out. First, although guidelines advised against calcium channel blockers due to potential harm in heart failure, their use increased, likely reflecting earlier recommendations for managing comorbid conditions. Second, beta-blockers remained the most commonly prescribed drugs despite limited evidence of benefit in HFpEF, with their use largely extrapolated from heart failure with reduced ejection fraction. Meanwhile, guideline-recommended therapies such as ACE inhibitors and angiotensin receptor blockers were relatively underused. More recent guidelines emphasize newer agents, including angiotensin receptor/neprilysin inhibitors and SGLT-2 inhibitors, yet traditional medications continue to dominate. These patterns highlight a persistent gap between evidence and practice, underscoring the need for better dissemination of guidelines and clinician education.
- 4 Technological innovation is another key driver of progress in cardiovascular care, though it raises concerns about cost. Healthcare spending in the United States reached \$4.5 trillion in 2022, partly due to a system that prioritizes high-cost specialty care over prevention. While new technologies can improve outcomes, their adoption must be balanced with cost-effectiveness.
- 5 A study by da Rosa Decker et al. illustrates this balance by evaluating end-tidal carbon dioxide monitoring during cardiopulmonary resuscitation in a middle-income setting. The analysis showed that integrating this technology improves outcomes while remaining economically viable. At a broader level, tools such as the Incremental Cost-Effectiveness Ratio (ICER) and Willingness-to-Pay (WTP) thresholds help determine whether treatments provide sufficient value relative to their cost, supporting more efficient use of healthcare resources.
- 6 Healthcare disparities remain a major challenge, with race, sex, and socioeconomic status influencing outcomes. Women, for example, experience worse outcomes in acute coronary syndromes despite cardiovascular disease being their leading cause of death. Misperceptions of risk, delays in diagnosis, and lower use of evidence-based interventions contribute to these differences, which are also shaped by the underrepresentation of women in clinical research.
- 7 Similarly, patients with atrial fibrillation and dementia face higher mortality and reduced access to advanced treatments such as catheter ablation. Women are also less likely to receive these interventions despite similar

mortality rates. These findings highlight the importance of personalized care that considers individual characteristics while reducing bias.

- 8 Racial and socioeconomic disparities further complicate care. Black patients are disproportionately affected by pregnancy-associated myocardial infarction, and individuals from lower socioeconomic backgrounds face higher risks due to factors such as smoking, obesity, and limited access to care. **(A)** Addressing these disparities requires targeted interventions and attention to social determinants of health. **(B)**
- 9 Cultural factors also influence outcomes. Research involving Māori communities in New Zealand identified barriers such as cultural misunderstanding, discrimination, and limited resources, contributing to delays in care. **(C)** Improving cultural competence and aligning care with patients' social contexts are essential steps toward better outcomes. **(D)**
- 10 Technological tools offer additional opportunities to enhance care quality. Clinical decision support systems improve coordination and help identify high-risk patients, while electronic medical records can reduce unnecessary testing. However, these tools must be adapted to local practice patterns to be effective. Digital platforms for research participation also show promise in improving engagement, although access barriers persist for some populations.
- 11 Finally, patient adherence plays a critical role in outcomes. Cardiac rehabilitation completion rates in the United States range from 40% to 60%, with barriers including cost, competing responsibilities, and limited social support. Patients who complete these programs tend to have stronger support systems and fewer psychological challenges. Addressing these barriers through financial assistance, policy changes, and family involvement can improve participation and outcomes.
- 12 Overall, improving cardiovascular care requires integrating evidence-based practice, cost-conscious innovation, equitable care, and patient-centered strategies.

Adapted from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC11410728/>

1. According to paragraph 1, how have QI strategies in cardiovascular care evolved?
 - A. They have reduced their reliance on clinical data over time.
 - B. They have remained focused on emergency care in hospital settings.
 - C. They have emphasized short-term fixes instead of long-term outcomes.
 - D. They have shifted toward structured, evidence-based improvement models.
2. The word “*gap*” in paragraph 2 is closest in meaning to
 - A. a complete absence of medical knowledge.
 - B. a delay or difference between two stages.
 - C. a physical space between two structures.
 - D. a failure caused by lack of resources.
3. Why does the author discuss HFpEF in paragraph 2?
 - A. To demonstrate that current treatments are fully effective.
 - B. To compare HFpEF with unrelated cardiovascular diseases.
 - C. To illustrate how guideline implementation can lag behind research.
 - D. To argue that HFpEF is the most common heart condition worldwide.
4. According to paragraph 3, why did the use of calcium channel blockers increase?
 - A. They became the preferred option in newer treatment guidelines.
 - B. They were strongly supported by recent clinical trial evidence.
 - C. Earlier guidance focused on managing related conditions.
 - D. Physicians had limited access to alternative treatments.
5. What can be inferred about beta-blocker use in HFpEF?
 - A. It is strongly supported by direct evidence in HFpEF patients.
 - B. It is based largely on findings from a different condition.
 - C. It has been completely abandoned in recent guidelines.
 - D. It is only used in combination with newer therapies.

6. The phrase “*these patterns*” in paragraph 3 refers to
- A. changes in healthcare spending over time.
 - B. differences in age groups within patient populations.
 - C. variations in patient symptoms across different regions.
 - D. mismatches between recommendations and prescribing habits.
7. Why does the author include cost data in paragraph 4?
- A. To highlight the financial pressure linked to innovation.
 - B. To show that new technologies reduce total spending.
 - C. To compare expenses across global health systems.
 - D. To argue against adopting new medical tools.
8. The word “*viable*” in paragraph 5 is closest in meaning to
- A. difficult to implement in practice.
 - B. likely to produce harmful effects.
 - C. limited to experimental settings.
 - D. capable of working effectively.
9. What can be inferred about ICER and WTP in paragraph 5?
- A. They are designed to replace clinical judgment entirely.
 - B. They apply mainly to emergency treatment decisions.
 - C. They are used to judge value in relation to cost.
 - D. They focus only on lowering patient expenses.
10. Which of the following best restates the main idea of paragraph 5?
- A. Economic measures help assess the value of treatments.
 - B. New technologies are always too expensive to adopt.
 - C. Cost should not influence decisions in patient care.
 - D. Financial limits should be ignored in healthcare.
11. What is the main function of paragraph 6?
- A. To introduce disparities as a key issue in care.
 - B. To summarize the success of recent treatments.
 - C. To outline the history of inequality in healthcare.
 - D. To compare cardiovascular disease with other illnesses.
12. According to paragraph 6, why do women experience worse outcomes?
- A. They face delays and undergo outdated medical treatments.
 - B. They have fewer biological risk factors overall.
 - C. They receive more intensive care than men.
 - D. They tend to seek help at earlier stages.
13. In paragraph 6, what can be inferred about clinical research and women?
- A. Women are overrepresented in most clinical trials.
 - B. Research findings fully reflect women’s health needs.
 - C. Limited representation contributes to disparities in care.
 - D. Clinical trials focus exclusively on female rather than male patients.
14. The phrase “*these differences*” in paragraph 6 refers to
- A. differences in hospital infrastructure.
 - B. changes in treatment guidelines over time.
 - C. variations in healthcare costs across countries.
 - D. disparities in outcomes between men and women.

- 15.** Which sentence best expresses the essential meaning of the following sentence from paragraph 8?
“Addressing these disparities requires targeted interventions and attention to social determinants of health.”
- A. Targeted actions and social factors must be considered to reduce disparities.
 - B. Disparities can be resolved without focusing on specific population needs.
 - C. Social determinants have little impact on healthcare outcomes.
 - D. Interventions should focus only on clinical treatments.
- 16.** There are four locations in paragraphs 8 and 9 marked **(A)**, **(B)**, **(C)**, and **(D)**. Where would the following sentence best fit?
“These findings demonstrate how cultural factors can directly affect healthcare access.”
- 17.** Why does the author discuss technological tools in paragraph 10?
- A. To argue that technology has replaced physicians.
 - B. To highlight both benefits and limitations of these tools.
 - C. To suggest that technology is unnecessary in healthcare.
 - D. To compare different types of software systems and their uses.
- 18.** Which of the following best restates the main idea of paragraph 10?
- A. Technology in healthcare is largely ineffective.
 - B. Digital systems remove the need for clinicians.
 - C. Standard tools work equally well everywhere.
 - D. Tools must be adapted to local contexts.
- 19.** Which of the following best describes the main idea of the passage?
- A. Better outcomes require combining evidence, cost, and equity.
 - B. Cardiovascular care depends entirely on new technology.
 - C. Health systems should focus mainly on reducing costs.
 - D. Clinical guidelines are no longer relevant today.
- 20.** What is the author’s overall attitude toward current cardiovascular care?
- A. Strongly critical of all existing practices.
 - B. Indifferent to ongoing issues in healthcare.
 - C. Optimistic but aware of important limitations.
 - D. Dismissive of recent advancements in the field.

END OF EXAM



Answer Key with Explanations

| Q | Answer | Location | Type | Explanation |
|----|--------|----------|-------------------------|---|
| 1 | D | P1 | Factual information | Evolution from isolated fixes to systematic approaches. |
| 2 | B | P2 | Vocabulary | “Gap” refers to delay between stages. |
| 3 | C | P2 | Purpose | HFpEF illustrates implementation delay. |
| 4 | C | P3 | Factual information | Linked to earlier comorbidity-focused recommendations. |
| 5 | B | P3 | Inference | Based on extrapolation from HFREF. |
| 6 | D | P3 | Reference | Refers to mismatch between guidelines and practice. |
| 7 | A | P4 | Purpose | Cost data highlights financial burden. |
| 8 | D | P5 | Vocabulary | “Viable” means workable or effective. |
| 9 | C | P5 | Inference | Tools evaluate value relative to cost. |
| 10 | A | P5 | Paraphrase | Accurate paraphrase. |
| 11 | A | P6 | Rhetorical function | Introduces disparities. |
| 12 | A | P6 | Factual information | Mentions delays and reduced access to care. |
| 13 | C | P6 | Inference | Underrepresentation contributes to disparities. |
| 14 | D | P6 | Inference | Refers to outcome differences. |
| 15 | A | P7 | Sentence simplification | Simplified meaning. |
| 16 | C | P8 | Insert text | Follows mention of delays in care. |
| 17 | B | P9 | Rhetorical function | Balanced view of benefits and limits. |
| 18 | D | P9 | Paraphrase | Emphasizes adaptation to context. |
| 19 | A | Whole | Whole text | Integrates evidence, cost, and equity. |
| 20 | C | Whole | Whole text | Balanced, cautiously optimistic tone. |