

Coiera – Guide to Health Informatics (2nd ed.) Chapter 25 Multiple Choice Questions - Robin Beaumont
Wednesday, 18 February 2009

These MCQs are specific to the above chapter, they may not be globally correct but provide a method of immediate reflection concerning a particular paragraph within the chapter.

1. The idea of the 'electronic brain' in computer science is (select one choice):

- a. Ambitious but not controversial
- b. Not a major concern
- c. Achieved but still controversial
- d. Ambitious and controversial

2. Early endeavours of AI focused on (select one choice):

- a. Supporting para-medical groups
- b. Surpassing clinicians in medical tasks (e.g. diagnosis)
- c. Supporting laboratory staff
- d. Supporting clinicians in medical tasks (e.g. diagnosis)
- e. Surpassing clinicians in non medical tasks

3. According to Coiera, which of the following are important writers on Artificial Intelligence in Medicine (AIM) (select two choices):

- a. Shortliffe
- b. Coiera
- c. Wyatt
- d. Szolovits
- e. Shorten

4. In 1984 Clancey and Shortliffe reviewing the area of AIM stated that its purpose was primarily to (select one choice):

- a. Assist in diagnosis
- b. Assist in diagnosis and make therapy recommendations
- c. Perform diagnosis and make therapy recommendations
- d. Support therapy recommendation
- e. Perform automated therapy selection

5. Since the 1984 Clancey and Shortliffe AIM review what has changed regarding the purpose of AIM (select two choices):

- a. More hopeful that diagnosis will become computerised
- b. Treatment options become less as AIM optimised choice
- c. Less hopeful that diagnostic process will in general become computerised
- d. Treatment options will be increased with support from AIM
- e. Become more focused on supporting clinicians
- f. Become less focused on merely supporting clinicians

6. According to Coiera, in which of the following areas can intelligent systems be found (select three choices):

- a. Child psychiatry care
- b. Prescribing
- c. Cardiac rehabilitation
- d. Clinical surveillance
- e. Routine post operative care
- f. Intensive Care Units
- g. End of life care

7. From the information presented by Coiera, Intelligence systems have experienced difficulties in their introduction because of poor clinical fit for two reasons, what were they (select two choices)?

- a. Made clinicians superfluous
- b. Appropriate data was hidden
- c. Enforced rigid communication channels
- d. Reduced patient contact time
- e. Increased information anxiety in clinicians
- f. Changed clinical practice
- g. Offered inappropriate problem solving

8. Exponents of Weak AI believe that such systems act as a . . . (select one choice)?

- a. Replacement for expert
- b. Trainer
- c. Cognitive prosthesis
- d. Memory backup
- e. Alerts manager

9. The Turing test, as described by Coiera, tells you how to . . . (select one choice)?

- a. Identify an intelligence agent
- b. Build an intelligence agent
- c. Control an intelligence agent
- d. Co-exist with an intelligence agent
- e. Communicate with an intelligence agent

10. Coiera states that health related knowledge based systems . . . (select two choices)

- a. Are the rarest type of Clinical DSS in routine clinical use
- b. Are the commonest type of Clinical DSS in routine clinical use
- c. Are the most expensive type of Clinical DSS in routine clinical use
- d. Contain clinical knowledge
- e. Contain only anonymised patient knowledge
- f. Contain financial knowledge
- g. Contain Epidemiological knowledge
- h. Contain qualitative knowledge

11. Coiera provides a list of reasons why more CDSS are not in routine use. . . (select three choices)

- a. Unnecessary integration with Electronic Medical Record
- b. Overly complex Electronic Medical Record
- c. Lack of Electronic Medical Record
- d. Poor human interface design
- e. Excessive expense
- f. Excessive training
- g. Poor clinical fit
- h. Inferior quality of 'intelligence' from such systems

12. The CDSS systems that are currently in routine use range from. . . (select one choice)

- a. Specialised to general purpose
- b. Specialised only
- c. General purpose only
- d. Many specialised systems covering most of clinical practice
- e. None in routine clinical use now

13. In which of the following situations would it be most likely to have real time monitoring systems in place . . (select one choice)

- a. Patient visiting GP
- b. Patient visiting Nurse
- c. Patient in a rehabilitation centre
- d. Patient at home (ambulant)
- e. Patient in Intensive Care Unit
- f. Patient in hospice
- g. Patient on a general ward

14. Computerised diagnostic assistance is most likely to be used in the following situations (select three choices)

- a. Hot climates
- b. High altitudes
- c. Rare conditions
- d. General emergencies
- e. Inexperienced clinicians
- f. Major disaster situations
- g. Unconscious patients
- h. Complex situations (of condition and/or information obtained)

15. According to Coiera, in a Prescribing CDSS which is the LEAST common way that it assists in the prescribing process (select one choice)

- Drug interactions
- Dosage recommendations/errors
- Contraindications (e.g. allergies)
- Script generation
- Electronic transfer of script to pharmacy

16. The DXPLAIN system provides (select two choices)

- a. Admissions management
- b. Diagnostic support
- c. Order Entry
- d. Probabilities of symptoms for a large number of diseases
- e. Probabilities of symptoms for a large number of rare diseases
- f. Probabilities of length of stay for individual patients
- g. Bed planning
- h. Discharge management

17. The HELP system is unusual because it . . . (select one choice)

- a. Was developed as a open (freely available) system
- b. Prevents access to confidential clinical data
- c. Produces a Electronic medical record from the HELP system
- d. Is fully integrated into the Electronic Medical Record
- e. Is a fully functional standalone system
- f. Is a Web based system

18. Which of the following are examples of Expert Laboratory Information Systems (select two choices)

- a. AAPHelp
- b. Puff
- c. Poems
- d. Peirs
- e. Perfex
- f. Prodigy

19. The machine learning approach within AI can be thought of as . . . (select one choice)

- a. Propositional logic
- b. Bottom up approach (data -> model generation)
- c. Iterative prototyping
- d. Top down approach (model -> data fit)
- e. Incremental prototyping
- f. Markov chain

20. The CDSS evaluations have repeatedly demonstrated several benefits. Which of the following is NOT considered to be one of them. . . (select one choice)

- a. Patient safety improved
- b. Quality of care improved
- c. Efficiency of healthcare improved
- d. Mortality reduced
- e. Reduction in prescribing costs

21. In 2003 Sintchento et al reviewed fifty five CDSS evaluations, which percentage of them were Randomised Controlled Trials (RCTs). . . (select one choice)

- a. Around 10%
- b. Around 25%
- c. Around 50%
- d. Around 75%
- e. More than 75%

22. Most CDSS evaluation studies fail to consider . . (select one choice)

- a. IT System variables
- b. Process variables
- c. Outcome variables
- d. Qualitative variables
- e. End User variables

23. Physician order entry systems (POEs) have been shown to increase patient safety by three mechanisms . . (select three choices)

- a. Reduce time taken to prescribe
- b. Increase non generic prescribing
- c. Reduce patient compliance
- d. Increase appropriate prescribing
- e. Reduce patient drug over storage
- f. Reduce errors
- g. Increase patient consultations
- h. Reduce adverse events

24. Kanshal & Bates, 2001 estimated that the following number of people are injured or die each year in US hospitals as a result of adverse drug events (ADEs) (select one choice)

- a. <5,000
- b. <50,000 but more than <5,000
- c. <500,000 but more than <50,000
- d. <700,000 but more than 500,000
- e. >700,000 but less than >1,000,000
- f. >1,000,000

25. According to Coiera, who conducted the seminal studies concerning POE (select one choice)

- a. Bates
- b. Batson
- c. Behçet
- d. Banti
- e. Barlow

26. Hunt et al 1998 when reviewing CDSS on the practice of doctors and patient outcomes discovered that certain percentage of the studies were concerned with computer support for giving potentially toxic drugs. What was that percentage? (select one choice)

- a. 12%
- b. 22%
- c. 32%
- d. 42%
- e. >50%

27. In 1998 Monane et al identified 43,000 alerts for 23,697 people concerning prescriptions. What percentage of these resulted in any change in clinician behaviour of any sort? (select one choice)

- a. 74%
- b. 64%
- c. 54%
- d. 44%
- e. 34%
- f. 24%
- g. 14%

28. In 2000 Teich et al evaluated a prescribing decision support system (PDSS) in detail and discovered that compliance with generic drug choice after two years was. . . (select one choice)

- a. >50% but <60
- b. >60% but <70
- c. >70% but <80
- d. >80% but <90
- e. >90% but <100
- f. 100%

29. In 1998 Shojania et al demonstrated that use of Vancomycin (an antibiotic) dropped by 30% when prescribing guidelines were displayed when using a POE. They also demonstrated . . . (select one choice)

- a. Significantly longer course of antibiotic prescribed
- b. No change in course length of antibiotic prescribed
- c. Significantly shorter course of antibiotic prescribed
- d. Infections demonstrated a reduced resistance to vancomycin
- e. Infections demonstrated a increased resistance to vancomycin

30. In 1992 Kaplan & Norton advocated the balanced score card approach to evaluation which measures four perspectives. Which of the following are NOT one of them (select two choices)

- a. Medical
- b. Financial
- c. Internal processes
- d. Customer
- e. Organisation
- f. Ecological

End