Knowledge Probe (Pre-test)
Clinical Laboratory Techniques and Microtechnology
Instructor Guide

Notes to Instructor

This knowledge probe (KP) helps to evaluate the participants' current knowledge of clinical laboratory techniques and microtechnology **prior to** completing this learning module. This assessment is the same as the multiple choice Final Assessment.

This assessment is part of the Clinical Laboratory Techniques and Microtechnology Learning Module:

- **Knowledge Probe(KP) (Pre-test)**
- Clinical Laboratory Techniques and Microtechnology PK
- A Micro-Sized Testing Device: Activity
- Final Assessment

Introduction

This learning module is an overview of how microtechnology is used for standard clinical laboratory tests. It covers the advantages and challenges of taking clinical tests out of the laboratory to the point of care (POC). An activity allows you to dig deeper into a specific test or technique and discover how microtechnology is changing medical diagnostics.

The purpose of this knowledge probe is to evaluate your current understanding of clinical laboratory techniques and microtechnology prior to completing the Clinical Laboratory Techniques and Microtechnology Learning Module.

There are ten (10) questions. Answer each to the best of your knowledge.

1. Which of the following is NOT an advantage of applying microtechnology to clinical laboratory tests?
   a. Decreased costs as a result of miniaturization
   b. Larger sample size
   c. Point of care testing
   d. Simultaneous testing from one sample

2. Certain analytes such as HIV, HCV, glucose levels and certain drugs can now be tested on site or at home using what type of device?
   a. Testing swabs
   b. Magnetic microbeads
   c. Microarrays
   d. POC devices

3. Blood, plasma, spinal fluid, joint fluid, saliva and blood cells – these are example of …
   a. Bodily components that can be tested in a clinical laboratory
   b. Fluids currently and commonly tested using LOCs
   c. Test sample analytes for point-of-care devices

4. What does it mean when a test is qualitative? The test …
   a. requires a qualified, training individual to describe and analyze the test.
   b. estimates the concentration of an analyte in a sample.
   c. determines the exact concentration of an analyte in a sample.
   d. determines the presence or absence of an analyte in a sample.

5. What does it mean when a test is a quantitative? The test…
   a. requires a qualified, training individual to describe and analyze the test.
   b. estimates the concentration of an analyte in a sample.
   c. determines the exact concentration of an analyte in a sample.
   d. determines the presence or absence of an analyte in a sample.

6. What type or area of clinical laboratory testing is used for culturing bacteria for the purpose of identifying an organism?
   a. Microbiology
   b. Blood chemistry
   c. Histology
   d. Blood tests
   e. Molecular diagnostics

7. What type or area of clinical laboratory testing is used for the study of infections and inherited diseases?
   a. Microbiology
   b. Blood chemistry
   c. Histology
   d. Blood tests
   e. Molecular diagnostics

8. Which of the following is used to ensure that testing methods, instruments and procedures are consistent between clinical laboratories nationwide?
   a. A national database of certified equipment, procedures and laboratory personnel open to all clinical laboratories.
   b. National certification training programs that can be taken on-line or on-site by laboratories technicians.
   c. Certification of laboratory trainings programs, laboratories, and personnel by governmental and independent agencies.
   d. A national standard for all testing methods, instruments and procedures that must be used by all laboratories.

9. LOC and POC devices can receive a sample as small as a micro, nano or picoliters, and, in many cases, are able to analyze a variety of components in the sample simultaneously. Which of the following microtechnologies has enabled such devices?
   a. Micro-optics
   b. Surface micromachining
   c. Microfluidics
   d. Magnetic microbeads

10. Which of the following technologies has been shown to enable 3D cell growth by "levitating" the cells?
   a. Micro-optics
   b. Surface micromachining
   c. Microfluidics
   d. Magnetic microbeads

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