

# QUALITY CONTROL

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## OBJECTIVE/RATIONALE

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Quality control ensures the validity of laboratory test results. The student will be introduced to the concept of quality control within the medical microbiology laboratory.

TEKS 121.14 2B, 2C

TAKS ELA 1, 4  
Mathematics 8, 9, 10  
Science 1, 3

National Science Education Standards A9-12; E9-12; F9-12

National Health Care Skills Standards .01,.02,.03,.05,.06

National Curriculum Standards for School Mathematics S1; S2; S3; S10; S11

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## KEY POINTS

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- I. Quality Control
  - A. A set of laboratory procedures to ensure the test results are accurate and reliable as a diagnostic tool. Quality control includes testing known samples, charting the results, and a statistical analysis of the results.
  - B. To ensure reliable results, manufacturers procedures must be followed.
- II. Quality Control in the Medical Microbiology Laboratory
  - A. Equipment Control: All equipment is monitored daily or weekly to maintain appropriate temperature (waterbaths, autoclave, refrigerators, and incubators.) Any temperature variance outside the established range may affect the client's laboratory results.
  - B. Media/Agar Control: Media can be made in-house, purchased from media companies, or donated by local hospitals. Known stock cultures are used to check for growth and correct biochemical reactions of the media.
  - C. Reagent Control: Reagents used should be tested utilizing positive and negative controls. The quality of gram stain reagents is checked with known bacterial cultures.
  - D. Antimicrobial Disc Control: All antibiotic susceptibility discs should be checked against known bacterial cultures and the sensitivities compared with the manufacturer's results.
  - E. Stock Culture Control: Cultures themselves must be tested periodically to ensure viability and performance. (If results are erroneous, it is probably the stock culture that needs further investigation.)
  - F. Specimen Collection and Control: Protocols must be followed for proper collection of client's specimens.
- III. Summary
  - A. Laboratory results are not acceptable if the quality control is not within established parameters.

**\*Teacher Note**

*Local hospitals may give you outdated material and it may be appropriate for use in the high school laboratory.*

*Control strains of bacteria are available through biological companies.*

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**ACTIVITIES**

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- I. Create a quality control program, in cooperative groups, for a testing procedure performed in the laboratory. Design a multimedia presentation.

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**MATERIALS**

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Multimedia equipment

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**ASSESSMENT**

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Multimedia Rubric

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**ACCOMODATIONS**

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For reinforcement, the student will visit a Medical Microbiology laboratory and write a report to describe the quality control program and how it may affect the health consumer.

For enrichment, the student will research and present a case study involving the lack of quality control.

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**REFLECTIONS**

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