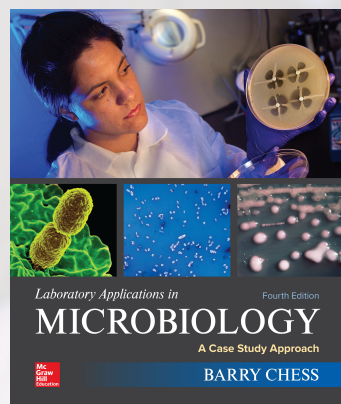


**New Features You'll See in
*Laboratory Applications in Microbiology, 4e***



Title: Laboratory
Applications in
Microbiology, 4e

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New to This Edition —

**Exercise 1: Safety Considerations in the
Microbiology Laboratory**

- 1 The lab now contains an active learning exercise to familiarize students with safety equipment in the lab.
- 2 Two new photographs were added.
- 3 New case study has been added concerning a researcher infected with an attenuated strain of plague due to an unknown medical condition.
- 4 The case concerning the UCLA student who died as a result of inadequate safety training has been updated.
- 5 A new case study on a 2017 *Salmonella* outbreak traced to college laboratories has been added.

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Exercise 3: A Survey of Protists

- 6 A completely reworked lab now presents protists as a single group in accordance with the most contemporary taxonomic theories.
- 7 The laboratory exercise now includes more than 50 new photographs.
- 8 Slime molds and cyanobacteria—both discussion and photographs—have been incorporated into the exercise.

Exercise 4: A Survey of Fungi

- 9 Fungi are organized into five groups according to latest scientific understanding.
- 10 The lab contains more than two dozen new photographs.

Exercise 5: A Survey of Parasitic Worms

- 11 Parasitic helminths are presented as a completely new laboratory exercise.
- 12 The exercise includes 20 new photographs and 2 new case studies centering on ingestion of parasitic worms.

Exercise 6: Ubiquity of Microorganisms

- 13 The lab includes entirely new pre-lab questions, along with an expanded introduction.
- 14 A new case study on a mucormycosis outbreak at the University of Pennsylvania Medical Center has been added.

Exercise 7: Aseptic and Pure Culture Techniques

- 15 A new case study concerning typhoid fever in Colorado has been added.

Exercise 8: Simple Staining, Negative Staining, and Gram Staining

- 16 A new staining gallery displays over a dozen photographs of stained bacterial cells.
- 17 The case study concerning listeriosis associated with cantaloupe has been updated to reflect the latest legal ramifications of the case.

Exercise 12: Viable Plate Count

- 18 A new case on an outbreak of *Campylobacter jejuni* infections associated with raw milk in Utah has been added.
- 19 A new discussion of dilution and dilution factors has been added to the lab.

Exercise 13: Cultivation of Anaerobes

- 20 A new case study involving botulism at a church picnic in Ohio has been added.

Exercise 15: pH and Microbial Growth

- 21 A new case study concerning botulism from pesto sauce bought from a farmer's market has been added.

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Exercise 16: Effects of Osmotic Pressure on Bacterial Growth

- 22 A new case study involving *Vibrio vulnificus* infection of a recent tattoo has been added.

Exercise 19: Effectiveness of Hand Scrubbing

- 23 A There's More to the Story activity, featuring the iScrub lite handwashing app to track hand hygiene, has been added.

Exercise 20: Antimicrobial Sensitivity Testing: Kirby-Bauer, Tube Dilution, and ETEST® Methods

- 24 A new case study involving Carbapenem-resistant *Klebsiella pneumoniae* has been added.

Exercise 21: Simulated Epidemic

- 25 A new case study involving a measles outbreak among the Somali community in Minnesota has been added.

Exercise 22: Morbidity and Mortality Weekly Report

- 26 A new case study involving the use of social media to track outbreaks of food poisoning in Chicago, New York, and Las Vegas has been added.

Exercise 23: Bacterial Transformation

- 27 A new case study involving the fourteenth documented case of VRSA has been added.

Exercise 24: The Ames Test

- 28 A new case study involving Zika virus and the safety of chemicals used to repel the *Aedes* mosquito that serves as a vector for the virus has been added.

Exercise 26: DNA Profiling

- 29 The case study concerning *Salmonella* infections associated with peanuts has been updated to include the latest legal ramifications for those involved.

Exercise 27: Blood Typing

- 30 The statistics for hemolytic transfusion reactions have been updated.

Exercise 28: Rapid Identification of *Staphylococcus aureus* Using Latex Agglutination Testing

- 31 An entirely new exercise focused on the use of rapid, immunologically based procedures has been added.
- 32 A new case study concerning MRSA infections linked to reuse of single-dose drug vials is included in the exercise.

Exercise 29: Slide Agglutination

- 33 A new case study concerning a *Salmonella* outbreak linked to environmental exposure has been added.

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**Exercise 30: Enzyme-Linked
Immunosorbent Assay (ELISA)**

- 34 A new case study involving viral meningoencephalitis linked to a rodent infestation in Minnesota has been added.

**Exercise 31: Biofilm Culture and
Examination**

- 35 A new exercise focused on the importance of biofilm formation has been added.

- 36 A new case study concerning *Mycobacterium abscessus* Infections Among Patients of Pediatric Dentistry Practices in Georgia and California has been added to the exercise.

**Exercise 32: Measures of Water Quality:
Most Probable Number Procedure**

- 37 A new case study concerning the appearance of *E. coli* in the water supply serving Walker County, Georgia, has been added.

**Exercise 33: Measures of Water Quality:
Membrane Filtration Method**

- 38 A new case study concerning water quality on aircraft is now part of the exercise.

**Exercise 34: Measures of Milk Quality:
Methylene Blue Reductase Test**

- 39 A new case study concerning West Virginia legislators becoming ill after consuming raw milk has been added.

Exercise 35: Bacterial Counts of Food

- 40 A new case study which follows three very different incidents of food poisoning has been added.

**Exercise 36: Isolation and Identification of
Staphylococci**

- 41 A new case study which follows news reports of an NFL player battling a staph infection has been added.

**Exercise 37: Isolation and Identification of
Streptococci**

- 42 A new case study centered on a late case of Group B streptococcus related to a consumption of dehydrated placenta has been added.

**Exercise 38: Epidemiology of
Gastrointestinal Illness: Differentiation of
Enterobacteriaceae**

- 43 Three new case studies, each of which examines an outbreak caused by a different species of bacteria is now part of the exercise.

**Exercise 39: Differential White Blood Cell
Count**

- 44 A new case study concerning trichinellosis linked to consumption of walrus meat has been added.

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Exercise 49: CHROMagar Orientation Medium

- 45** A new exercise covering the use of chromogenic media has been added.
- 46** Several new photographs of bacterial growing on chromogenic agar are part of the exercise.

Exercise 57: Blood Agar

- 47** A new photograph of β -hemolysis has been added to the exercise.

Exercise 80: Casease Test

- 48** A new photograph of casein hydrolysis has been added to the exercise.

Exercise 90: Viable Plate Count

- 49** Explanations and equations for calculating dilution factors and original cell densities have been clarified.

Exercise 91: Direct Cell Count

- 50** Explanations and equations for calculating dilution factors and original cell densities have been clarified.