Chapter 1: Phlebotomy and Healthcare

Preface/Introduction

Professionals called *phlebotomists* perform an invasive procedure called *phlebotomy* that involves an incision into the skin and blood vessels. Phlebotomists work in various healthcare settings and interact with many other healthcare professionals inside and outside of the medical laboratory. At all times during their professional practice, phlebotomists must demonstrate a mastery of the principles and techniques established by the Clinical and Laboratory Standards Institute (CLSI) and comply with all other governmental regulations concerning medical laboratories.

Learning Outcomes

1.1 Summarize the definition and history of phlebotomy.

1.2 Explain the role of the phlebotomist in the various healthcare facilities where he or she may be employed.

1.3 Describe inpatient and outpatient healthcare facilities and their relationship to the practice of phlebotomy.

1.4 Identify the healthcare providers and other members of the healthcare team with whom the phlebotomist will interact in inpatient and outpatient facilities.

1.5 Summarize the organization of the medical laboratory.

1.6 Recognize the agencies that regulate hospitals and medical laboratories.

1.7 List the qualities and characteristics of a phlebotomist.

Extended Outline

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| **Outline** | **PowerPoint® Slides** |
| I. Phlebotomy (LO 1.1) | Slides 9–13 |
| A. History of Phlebotomy | Slides 12–13 |
| II. Phlebotomist’s Role (LO 1.2) | Slides 14–18 |
| A. Phlebotomy Training | Slide 18 |
| III. Healthcare Facilities (LO 1.3) | Slides 19–22 |
| A. Inpatient Facilities | Slide 20 |
| B. Outpatient Facilities | Slide 21 |
| IV. The Healthcare Team (LO 1.4) | Slides 23–25 |
| V. The Medical Laboratory (LO 1.5) | Slides 26–38 |
| A. Medical Laboratory Specialties | Slides 28-37 |
| B. Medical Laboratory Personnel | Slide 38 |
| VI. Regulatory Agencies (LO 1.6) | Slides 39–42 |
| VII. Qualities of a Phlebotomist (LO 1.7) | Slides 43–51 |
| A. Professionalism | Slide 44 |
| B. Public Image | Slide 45 |
| C. Customer Service and Communication | Slide 47–51 |
| **Appendix Slides** |  |
| Hierarchy in the Medical Laboratory | Slide 53 |

Lecture Outline

• **Phlebotomy** (LO 1.1)

○ *Phlebotomy* simply means to cut into a vein. The term comes from *phlebos*, which is Greek for “vein,” and tome, which means “to cut.”

○ The primary role of a phlebotomist is to obtain blood specimens for diagnostic testing, either by phlebotomy/venipuncture (puncturing the vein) or capillary (dermal) puncture (puncturing the skin).

○ The process of removing blood from the veins may date back as far as 1400 BC. During the time of Hippocrates, bloodletting was thought to return the body to a balanced state.

○ In the early 1800s, the popularity of bloodletting created demand for leeches. The use of leeches has resurfaced in medicine today.

○ Bloodletting also used a process called *venesection*, in which the vein was pierced with a sharp object, called a *lancet*, to drain blood.

○ Due to advances in technology and expanding duties of laboratory staff, phlebotomy emerged as a separate profession in the 1980s to 1990s.

• **Phlebotomist’s Role** (LO 1.2)

○ The phlebotomist is responsible for the collection, processing, and transport of blood specimens to the laboratory for testing. This responsibility consists of the pre-examination phase of laboratory testing. In the performance of these duties, the phlebotomist may also act as a patient advocate.

○ The phlebotomist may also be responsible for performing point-of-care testing (POCT), such as blood glucose monitoring.

○ Entry into phlebotomy training programs usually requires a high school diploma or its equivalent. Training programs are offered in a variety of settings.

○ Programmatic accreditation such as that offered by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) ensures that students completing the training program are qualified to take a certification examination.

○ Various healthcare professionals may be trained to perform phlebotomy.

• **Healthcare Facilities** (LO 1.3)

○ Phlebotomists employed at inpatient facilities work directly with several members of the healthcare team.

○ Outpatient settings that employ phlebotomists include physician offices, ambulatory care centers, reference laboratories, blood collection centers, home healthcare agencies, veterinary offices, health maintenance organizations, and the American Red Cross.

• **The Healthcare Team** (LO 1.4)

○ Departments in a typical hospital include anesthesiology, cardiology, diagnostic imaging, electrocardiography, electroencephalography, emergency department, endocrinology, general medicine, geriatrics, internal medicine, neonatology, nephrology, neurology, nuclear medicine, nutrition and dietetics, obstetrics/gynecology, occupational therapy, oncology, orthopedics, pathology, pharmacy, physical therapy, psychiatry, respiratory therapy, surgery, and urology.

• **The Medical Laboratory** (LO 1.5)

○ Most hospitals have their own laboratories, which are referred to as “medical” or “clinical” laboratories because they perform a wide range of tests in several specialties.

○ Each laboratory is organized based on its size and the needs of the facility. Several layers of management may exist. All laboratories must have a director or administrator who is ultimately responsible for the test results reported by laboratory personnel.

○ Clinical pathology is the laboratory analysis of body fluids and bodily tissue for the diagnosis of disease. Anatomical pathology involves the examination of surgical specimens to investigate disease and/or cause of death.

○ Medical laboratory specialties include cytology, histology, clinical chemistry, hematology, immunohematology, immunology and serology, medical microbiology, molecular diagnostics, toxicology, and urine and body fluid analysis.

○ Medical laboratory personnel may include medical office staff, medical transcriptionists, medical laboratory assistants, medical laboratory technicians, medical laboratory scientists, histologic technicians, histologists, cytologists, pathologists, and pathologists’ assistants.

• **Regulatory Agencies** (LO 1.6)

○ The 1988 Clinical Laboratory Improvement Amendment (CLIA’88) was established to ensure that all laboratories receiving federal funds, regardless of size, type, or location, would meet the same standards and be certified by the federal government.

○ Classifications of laboratories are based on the complexity of testing performed and the associated patient risks if the tests are not performed properly.

○ The Joint Commission (TJC) accredits hospitals; the College of American Pathologists (CAP) accredits clinical laboratories; the Commission on Office Laboratory Accreditation (COLA) accredits physician office laboratories (POLs); and the Clinical Laboratory Standards Institute (CLSI) develops and publishes national and international standards for clinical laboratory testing procedures.

○ CLSI standards are categorized into the phases of laboratory testing: pre-examination, examination, and post-examination.

• **Qualities of a Phlebotomist** (LO 1.7)

○ Professionalism and good interpersonal skills are critical for phlebotomists.

○ Phlebotomists are the “face of the lab” to the patient and must portray an acceptable public image, which includes cleanliness, good grooming, and appropriate dress for the work setting.

○ Communication skills are key to providing good customer service. This includes both verbal and nonverbal communication.

○ Phlebotomists should be aware of the barriers to communication that may affect customer satisfaction.

Teaching Strategies

| **Curriculum Hours**  **0 to 2.0** | **Total Time**  **2.0 hours** | **Activities & Instructions** | **Materials** | **Learning**  **Outcomes** |
| --- | --- | --- | --- | --- |
| Introduction | 5 min | Introduce self and give an overview of the course and expectations. Have students briefly introduce themselves. |  |  |
| Lecture | 80 min | Use lecture outline and PowerPoint® presentations.  Ask students what they think a phlebotomist’s role is in the delivery of healthcare.  Introduction  Discuss the history of phlebotomy.  Discuss the phlebotomist’s role.  Describe facilities where phlebotomists work.  Provide general information about the various departments.  Provide detailed information about the personnel of a medical laboratory.  Explain the functions of laboratory regulatory agencies.  Discuss the qualities of a phlebotomist.  Summary | Chapter 1 lecture outline  PowerPoint® slides:   * 1. to 1-6   1-7 to 1-11  1-12 to 1-15    1-16 to 1-18  1-19 to 1-20  1-21 to 1-32  1-33 to 1-36  1-37 to 1-40  1-41 to 1-42 | LO 1.1  LO 1.2  LO 1.3  LO 1.4  LO 1.5  LO 1.6  LO 1.7 |
| Active Learning | 30 min | Have students complete activities provided or create other activities. |  | LO 1.1-  1.7 |
| Review | 5 min | Review and answer student questions. | Learning outcomes | LO 1.1-  1.7 |
| Assignments |  | Complete end-of-chapter questions.  Assign or have students select assignments from options provided, or create other assignments using resources on Connect. | Textbook | LO 1.1-  1.7 |

In-Class Activities

LO 1.1

• Provide students with a space along the top of a wall in the classroom on which they can maintain a timeline displaying the history of phlebotomy.

• As the course progresses, encourage students to research historical facts about phlebotomy and place the information on the timeline. Examples include when the sterilization of needles began, the development of the evacuated tube, and when each additive was put into use.

• Periodically, have students review the timeline facts that have been added.

LO 1.2

• Use the topic “phlebotomy” or “venipuncture” to begin a discussion about the laboratory profession of phlebotomy. Encourage students to discuss their own personal stories of blood collection performed on themselves or family members.

• Relate to the students the importance of accurate diagnostic tests and the role of the phlebotomist. Summarize by explaining their responsibility for ensuring the accuracy of the diagnostic tests that they will be performing. Personalize the idea by reminding them that they would expect accurate test results for themselves, a friend, or a loved one.

LO 1.3

• Initiate a discussion about types of healthcare facilities that students may have visited. Have students talk about their experiences at doctors’ offices, nursing homes, hospitals, outpatient clinics, specimen collection centers, etc.

LO 1.4

• Divide the students into cooperative learning groups. Ask each group to research a medical discipline that is found in the hospital.

• Have each group select a method of presenting their findings to the class.

○ Verbal presentation

○ Poster display

○ Skit or role-play

LO 1.5

• Designate different areas of the classroom as the various laboratory sections.

• Give students index cards with names of laboratory tests or procedures and have them match the tests to the lab sections by placing each card in each section’s designated spot.

• Reassure students that this is simply an exercise and tell them not to worry if they make incorrect selections.

• This activity can be repeated throughout the course to help students learn to which lab sections they should deliver specimens.

LO 1.6

• Have students find a website for one of the laboratory regulatory agencies listed in Table 1-4 and list the resources provided on the website.

• Ask students to write a brief report on the relevance of that agency to them as phlebotomists.

LO 1.7

• Have students play the old game of “telephone” by whispering the message below to a student who then whispers it into the next student and so on, until all the students have heard the message. Have the last student repeat the message aloud to the whole class. Discuss the importance of writing down all messages, especially laboratory directions or results.

Message: “Please tell Dr. Hasimoto that Walther Riley Hospital is on the telephone reporting that Walter Haanson’s hemoglobin is 7.5 and his hematocrit is 22.6%. His previous hematocrit was 10.9. Does the doctor want the laboratory to type and cross-match his blood?”

Assessment

Using the test bank for Chapter 6, create a written test in two versions for a final evaluation of student proficiency.

• Have students complete LearnSmart and Connect activities, as assigned.

• Create a Chapter 1 test or quiz in Connect to evaluate student proficiency.

• Have students write and submit a reflection of key concepts for Chapter 1. Submission can also be via an uploaded assignment through Connect.

Answer Key

Checkpoint Questions/Think It Through

LO 1.1

Checkpoint Questions

1. To cut a vein

2. Venipuncture is the puncture of a vein, whereas capillary (dermal) puncture is a puncture of the skin.

3. Clinical and Laboratory Standards Institute (CLSI)

4. In the late 1980s and early 1990s

LO 1.2

Checkpoint Questions

1. The phlebotomist is responsible for collecting, processing, and transporting blood specimens to the laboratory and may also be responsible for other patient- or specimen-related tasks.

2. Point-of-care testing (POCT) is testing that is performed at the patient’s bedside or in a work area using portable instruments.

3. Maintaining patient safety

LO 1.3

Checkpoint Questions

1. Answers will vary. Examples include hospitals, nursing homes, and rehabilitation centers.

2. Answers will vary. Examples include ambulatory care centers, physician offices, blood banks, veterinary offices, home health services, insurance companies, and complementary and alternative medicine settings.

LO 1.4

Checkpoint Questions

1. c

2. a

3. b

4. e

5. d

LO 1.5

Checkpoint Questions

1. d

2. e

3. b

4. c

5. a

LO 1.6

Checkpoint Questions

1. Commission on Office Laboratory Accreditation (COLA)

2. The 1988 Clinical Laboratory Improvement Amendments (CLIA’88) was established to ensure that all laboratories receive federal funds. It serves as the main regulatory body for laboratories and establishes qualifications for phlebotomists.

LO 1.7

Think it Through: Providing Customer Service

With a calm, pleasant manner let the customers who are waiting know that there is a slight delay because of staff illness. Tell them you are making every effort to get to them in the laboratory as soon as possible. Let them know that you expect assistance soon and this will help speed up the process.

Checkpoint Questions

1. Positive nonverbal communication includes good body posture, a well-groomed appearance, making eye contact, and respecting the patient's personal space.

2. Customer service is treating your customers (patients) so that they are pleased with the services you provide as well as the manner in which you deliver them.

Chapter Review

A: Labeling

1. Sender (LO 1.7)

2. Message (LO 1.7)

3. Receiver (LO 1.7)

4. Feedback (LO 1.7)

B: Matching

5. d (LO 1.6)

6. h (LO 1.6)

7. a (LO 1.6)

8. e (LO 1.6)

9. c (LO 1.6)

10. g (LO 1.6)

C: Fill in the Blank

11. (LO 1.2) phlebotomist

12. (LO 1.5) pathologist

13. (LO 1.7) certified

14. (LO 1.3) point-of-care testing (POCT)

15 and 16. (LO 1.7) Verbal: Answers may vary. Examples: using slang or street language, calling the patient “honey” or “sweetie,” using medical terms

17 and 18. (LO 1.7) Nonverbal: Answers may vary. Examples: improper grooming or attire, avoiding eye contact, not respecting personal space, slouching

D: Sequencing

19. 1 (LO 1.5)

20. 4 (LO 1.5)

21. 3 (LO 1.5)

22. 5 (LO 1.5)

23. 2 (LO 1.5)

E: Case Studies/Critical Thinking

24. (LO 1.7) Apologize for the long wait and work as quickly as possible so that the patient can get back to work. Ask if she would like to reschedule and instruct her to make sure that the receptionist is aware of the urgency of her time commitment.

25. (LO 1.7) No, the phlebotomist should go to the nurse caring for the patient or a family member who can speak English and Spanish. All patients are legally entitled to give their consent for procedures, and hospitals receiving funding from the Department of Health and Human Services must provide an interpreter if no family member is available.

26. (LO 1.7) Initially, using a very soft, easy tone and mannerisms, the phlebotomist should remind the patient that the physician ordered the tests to assist with evaluating the patient’s condition. If the patient continues to refuse, the phlebotomist should leave as requested, document the incident thoroughly, and notify the physician.

F: Exam Prep

27. b (LO 1.1)

28. c (LO 1.2)

29. d (LO 1.2)

30. b (LO 1.2)

31. c (LO 1.2)

32. d (LO 1.3)

33. b (LO 1.4)

34. d (LO 1.4)

35. c (LO 1.4)

36. a (LO 1.7)

37. b (LO 1.4)

38. c (LO 1.5)

39. c (LO 1.5)

40. c (LO 1.5)

41. c (LO 1.5)

42. d (LO 1.6)

43. c (LO 1.6)

44. a (LO 1.7)

45. b (LO 1.7)

46. c (LO 1.7)