

KCLA-0040 Clinical Lab Procedures I

Course Description

Provides understanding of phlebotomy theory and skill performance; and of basic concepts, safety and procedures of the clinical lab. Learn proper handling and performance of CLIA waived hematology/serology labs and proper specimen handling and performance of microbiology and urinalysis testing.

Competencies

Upon completion of the course, you will be rated as MC (Mastered Competency) or NM (Not-Mastered Competency) based on your demonstrated ability of the course's established competencies. You will:

- Differentiate the anatomy of venous structures essential in phlebotomy
- Recognize legal aspects of phlebotomy
- Distinguish equipment and supplies used to obtain blood samples
- Successfully perform technically correct and safe venipuncture using vacutainer butterfly, and syringe techniques
- Process laboratory specimens using proper techniques
- Utilize basic concepts of clinical lab procedures
- Practice clinical laboratory safety procedures
- Demonstrate proper use of laboratory equipment
- Discuss CLIA waived testing in hematology and serology
- Demonstrate CLIA waived testing in hematology and serology
- Discuss laboratory testing in microbiology
- Demonstrate laboratory testing in microbiology
- Discuss laboratory testing of urine samples
- Demonstrate laboratory testing of urine samples

Assessment

Within this course you will be completing summative objective assessments and summative performance assessments. There will be a summative objective assessment at the end of Module 1 Part 1 and at the end of the course. Summative performance assessments will be at the end of Module 1 Part 2 and at the end of the course. The objective tests consists of multiple choice, matching, and ordering questions. The performance assessment will be performance of skills learned and practiced within the course. You must pass assessments with a minimum score of 80% for objective assessments and 85% for performance assessments before you will be graded with an MC for the course.

Syllabus and Learning Resources

Read the [KCLA 0040 Syllabus \(Links to an external site.\)Links to an external site.](#) to understand the expectations for this course. The instructor will go through the syllabus and review the textbook with you on your first day of class. In this course, you will also be able to utilize the learning resources in the evolve website available through the Online Link or within the modules under Evolve Student Resources.

- *Kinn's The Clinical Medical Assistant* (text, study guide, procedure checklist manual ISBN: 9780323446464)
- [Evolve Student Resources Online Link \(Links to an external site.\)Links to an external site.](#)

***NOTE:** Some assignments will require completion of an interactive pdf file. Be sure to download the file from Canvas to your flashdrive and rename and save. Work from this saved file on the flashdrive to complete, resave, and upload.

Online Communication Policy

This [document \(Links to an external site.\)Links to an external site.](#) provides information of what to anticipate for communication timelines from your instructor and for student participation throughout the course.

Course Navigation

In the left navigation bar is a Course Tools menu. It provides information about what tools you need for the course, and how to navigate in Canvas. Start the course with the first module below. You can also click on the **Modules** link in the left navigation bar to navigate through the course.

[Module 1: Part 1](#)

[Module 1: Part 2](#)

[Summative Performance Assessment](#)

[Module 2](#)

[Module 3](#)

[Module 4](#)

[Module 5](#)

[Summative Assessments Group 2](#)

[Course Image References Available Here](#)

Module 1 : Phlebotomy Introduction

Phlebotomy is the collection of a blood sample through venous access. It is important that you obtain the knowledge necessary to perform this skill safely and effectively. Blood samples are used to test various components of the blood that assist in diagnosis and treatment of patients.

The duties of a phlebotomist include proper identification of the patient, interpretation of the tests that are requested on the requisition, drawing the correct evacuated blood tubes in the correct order, accurately explaining the procedure to the patients, verifying patient preparation for the ordered test, practicing medical asepsis, use of standard precautions, perform the venipuncture with good techniques, restore hemostasis of the puncture site, instruct patients on post-puncture care, labeling the tubes correctly, and preparing and delivering specimens to the laboratory for testing.

Competencies

- Differentiate the anatomy of venous structures essential in phlebotomy
- Recognize legal aspects of phlebotomy
- Distinguish equipment and supplies used to obtain blood samples

When you have completed this module you will be able to:

- Identify anatomic structures necessary for venous access
- Demonstrate and explain correct order of tube draw including additive, related tests, and importance

- Complete lab requisitions
- Identify various equipment and supplies used in phlebotomy

Skills Sheet Module 1 - Part 1

In this module, you will need to download and print the Skills Sheet. This will help you keep track of assignments and assessments that need to be completed in this module. Have your instructor pass off each skill or activity that is required as you work through the module. This is retained in your student file upon completion. You will be doing this for each module.

[Skills Sheet Module 1 Part 1](#)

The video and reading the chapters in your textbook will provide information that will prepare you to begin your career as a Clinical Lab Assistant by introducing you to the world of healthcare and your place within it.

The learning activities will help you remember the details of the chapter and then you will be able to use the powerpoint to review the highlights. After that you can check your understanding with the Knowledge Check.

Instructional Activities Chapter 46

1. Read Chapter 46 in the *Kinn's The Clinical Medical Assistant* text.
2. View the [Venipuncture, Hematology and Immunology Procedures \(Links to an external site.\)Links to an external site.](#) [\(Links to an external site.\)Links to an external site.](#) video.
3. View the Elsevier Medical Assisting Procedures Video Skills clips in [Evolve \(Links to an external site.\)Links to an external site.](#) to prepare for skills practices.

- Assisting in Blood Collection
 - Collect a venous blood sample using the syringe method
 - Obtain a capillary blood sample by fingertip puncture

4. Read and study the [Phlebotomy Vocabulary Sheet](#)

*Optional Handout to be used in conjunction with Procedure checklists for corresponding activities.

[Specimen Collection](#)

*Additional [Resource for Phlebotomy Procedures \(Links to an external site.\)Links to an external site.](#): (includes information on the following items)

1. Proper patient identification procedures.
2. Proper equipment selection and use.
3. Proper labeling procedures and completion of laboratory requisitions.
4. Order of draw for multiple tube phlebotomy.
5. Preferred venous access sites, and factors to consider in site selection, and ability to differentiate between the feel of a vein, tendon and artery.
6. Patient care following completion of venipuncture.
7. Safety and infection control procedures.
8. Quality assurance issues.

Practice Chapter 46

Now that you have read the chapter, complete the exercises indicated below in the Study Guide. (Note: Any exercises that ask you to join an outside organization, contact or go to outside facilities can be disregarded). These exercises will help you use the information you learned so that it will be better understood and retained in memory. Use the answer key to self-check your work and correct mistakes you may have made. Have your instructor sign off completion of these exercises on your Skills Sheet.

Complete the following activities to practice what you have just learned. The learning activities will help you remember the details of the chapter.

Complete the Study Guide workbook exercises for Chapter 46.

1. Vocabulary Review
2. Skills and Concepts
3. Case Study
4. Workplace Application
5. Medical Record Activities
6. Check your understanding by using the [self-check answer key](#).
7. [Vacutainer System Identification Key](#)
8. Have your instructor sign off the completed assignments on your Skills Sheet.

Use the following StudyStack interactive activities for review: Flashcards, Matching, Study Stack, Study Table, Target, Type-in, Hangman, Crossword, Hungry Bug, Bug Match, Unscramble, Chopped, Quiz, and Test. The 'Target' activity has an interactive image to review letter layout.

- [Phlebotomy Basic Information \(Links to an external site.\)Links to an external site.](#)
- [Order of Tube Draw Basics \(Links to an external site.\)Links to an external site.](#)
- [Vacuum Blood Collection Tube Additives \(Links to an external site.\)Links to an external site.](#)
- [Vacuum Blood Collection Tubes and Tests](#)

Summary Chapter 46

View [Chapter 46 slides](#) to review the module information and determine if you need to review any concepts in more detail. This will provide a broad overview of the highlights of the chapter content.

Knowledge Check Chapter 46

Chapter 46 quiz on Evolve may be used first as a Knowledge Check. This is an optional assignment. You do not need to submit anything for this assignment.

In [Evolve \(Links to an external site.\)Links to an external site.](#) within Student Resources, go to the correct chapter and click on the link. Click on the Chapter review quiz to complete.

Kinn's Chapter 46 Practice Quiz

Instructions

This quiz can be taken inside or outside the classroom. It does not require a password. It will not count towards your grade. It is highly recommended that you take it and pass at a minimum of 80% to determine if any content areas need to be reviewed before going to the next module.

Testing Procedures:

1. Click **Take this Quiz** link.
2. Read each question and choose the best answer(s).
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Phlebotomy Practice Quiz

Instructions

This quiz can be taken inside or outside the classroom. It does not require a password. It will not count towards your grade. It is highly recommended that you take it and pass at a minimum of 80% to determine if any content areas need to be reviewed before going to the next module.

Testing Procedures:

1. Click **Take this Quiz** link.
2. Read each question and choose the best answer(s).
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Clinical Laboratory Procedures 1 Summative Objective Assessment 1- Requires Respondus LockDown Browser

Instructions

You must come to the classroom to complete this test. An instructor will need to provide a code for you to have access to this test. You must obtain a minimum of 80% to pass.

Choose the correct answer to each question.

Turn in your Skills Sheet to the instructor so that they may sign off on your activities. If all items in the module are complete your instructor will keep the completed Skills Sheet.

Skills Sheet Module 1 Part 2

In this module you will begin to practice the skills of phlebotomy now that you have passed the theory portion.

Competencies

- Successfully perform technically correct and safe venipuncture using vacutainer butterfly, and syringe techniques

- Process laboratory specimens using proper techniques

When you have completed this module you will be able to:

- Prepare necessary equipment for venipuncture
- Demonstrate proper venipuncture techniques using vacuum tubes
- Demonstrate proper venipuncture techniques using syringe
- Demonstrate proper venipuncture techniques using winged butterfly needle
- Use a centrifuge
- Properly transfer and store blood samples used for testing

You will need to download and print the Skills Sheet. This will help you keep track of assignments and assessments that need to be completed in this module. Have your instructor pass off each skill or activity that is required as you work through the module. This is retained in your student file upon completion. You will be doing this for each module.

[Skills Sheet Module 1 Part 2](#)

The videos and resources will provide information that will prepare you to begin your career as a Clinical Lab Assistant by introducing you to the world of healthcare and your place within it in the realm of phlebotomy.

You will complete performance assessments on these skills at the end of this module.

Phlebotomy Training Videos

The following phlebotomy training videos will provide instruction as you prepare to perform venipunctures. You will practice first on a mannequin and then on actual 'patient'. You will be performing these venipunctures on classmates. You may also bring in friends and family willing to help you in this learning activity, but they must be at least 18 years old and must sign the Liability Waiver before the procedure and witnessed by your instructor.

Watch each of the following four videos.

(You will be asked to sign in and enter a password - for each of these videos the access password is **password**.)

[Video 1: Basic Venipuncture \(Links to an external site.\)Links to an external site.](#)

Learn the basic technique for drawing blood specimens by venipuncture according to the CLSI standards in this Applied Phlebotomy training video. Detailed demonstrations include performing venipunctures using tube holders, syringes and winged blood collection sets. Emphasis is placed on needlestick safety, proper patient identification, preventing patient injury, and obtaining specimens free from errors that can alter results. This video includes written CE questions for in-house CE programs or for requesting P.A.C.E.® credit.

Running time: 31 minutes.

Learning Objectives: At the conclusion of the presentation, participants will be able to...

1. describe the procedure for performing venipunctures according to CLSI standards;
2. define the limits of needle manipulation according to CLSI standards;
3. describe the anatomy of the antecubital area in regards to veins, arteries, and nerves .

[Video 2: Preventing Pre-Analytical Errors \(Links to an external site.\)Links to an external site.](#)

Errors that collectors can introduce into specimens during collection, transportation, and storage that alter test results are detailed in this Applied Phlebotomy training video. The effects of prolonged tourniquet time, order of draw, complications with IV fluids, exercise, and fasting are highly detailed and reflect the latest research and CLSI guidelines. Additional topics include the effects of time, temperature, and delays in processing on test results. Includes written CE questions for in-house CE programs or for requesting P.A.C.E.® credit.
Running time: 39 minutes.

Learning Objectives: At the conclusion of the presentation, participants will be able to...

1. identify preanalytical errors that can significantly alter results;
2. minimize collection and processing errors that can alter test results obtained from the samples you collect;
3. train other health care professionals with phlebotomy responsibilities to become aware of the effect preanalytical errors have on patient care.

[Video 3: Avoiding Phlebotomy Related Law Suits \(Links to an external site.\)Links to an external site.](#)

This Applied Phlebotomy training video identifies the types of injuries patients suffer from poorly performed venipunctures that can lead to legal action against those who draw blood specimens and their employers. Detailed descriptions of the mistakes phlebotomists and their managers make that result in those injuries are presented using actual case studies from the files of an expert witness. Includes written CE questions for in-house CE programs or for requesting P.A.C.E.® credit.
Running time: 36 minutes.

Learning Objectives: At the conclusion of the presentation, participants will be able to...

1. identify the most common injuries poor phlebotomy technique inflicts upon patients;
2. associate errors in technique, judgment, and supervision with phlebotomy-related injuries;
3. describe the anatomy of the antecubital area in regards to veins, arteries, and nerves.

[Video 4: Pre-analytical Errors: Real People, Real Suffering. \(Links to an external site.\)Links to an external site.](#)

If you think drawing blood for lab work is simple and can't have consequences to the patient when performed improperly, think again. This powerful and poignant video testifies to the critical role phlebotomists play in patient care and the devastating consequences that happen when they are not properly trained and managed.

This [link \(Links to an external site.\)Links to an external site.](#) also has multiple short videos that can be used for review.

Order of Tube Draw

1. View the [Order of Tube Draw \(Links to an external site.\)Links to an external site.](#) Demo Video.
 - Pay attention to the critical nature of correct order based on additive crossover and it's potentially detrimental effects.
 - Note the colors of the tubes and their additives.
2. You may use the mnemonic in the [Accessibility score: Medium Click to improve Order of Tube Draw](#) handout, the one mentioned within your textbook, or create your own to memorize the order of draw for vacutainer tubes used in phlebotomy.
3. You will need to verbalize the following items to your instructor to pass this off:
 - Correct order of draw based on color/additive of the evacuated tube

- Additive within each color of tube
- Knowledge of the action of the additive on the blood (anticoagulant, coagulant accelerator, etc.)
- An example of a test performed with each tube
- The overriding reason and importance of following the correct order of draw

*This [Additional Phlebotomy Resource \(Links to an external site.\)](#)[Links to an external site.](#) is also very helpful.

Laboratory Requisitions

The Lab Requisition Assignments include actual orders from doctors in a primary care clinic to demonstrate how you may be given orders for patients and then must complete the requisition form.

You will learn:

- How to complete a requisition
- Common blood tests
- Vacuum tubes and volume of blood sample needed
- Patient Preparation needed
- Rationale for common blood tests
- Learn basic way to obtain ICD-10 diagnostic codes

Instructions:

1. Complete the first three requisitions using the [Computerized Provider Order Entry](#) and the information provided on the assignments and by completing questions on the assignment form.
2. Use the [ARUP Laboratory \(Links to an external site.\)](#)[Links to an external site.](#) website or [LabCorp website \(Links to an external site.\)](#)[Links to an external site.](#) as a resource to research information as required. You will need to use the ICD-10 manual within the classroom for the coding section.
 - [Lab Requisition 1](#)
 - [Lab Requisition 2](#)
 - [Lab Requisition 3](#)
1. Complete the last two requisitions using this different [ClevelandHeartlab Interactive Requisition](#) form to familiarize you with variations of forms.
2. Use the [ARUP Laboratory \(Links to an external site.\)](#)[Links to an external site.](#) website or [LabCorp website \(Links to an external site.\)](#)[Links to an external site.](#) as a resource to research information as required. You will need to use the ICD-10 manual within the classroom for the coding section.
 - [Lab Requisition 4](#)
 - [Lab Requisition 5](#)

Be certain that the test you mark on the requisition is exactly what has been ordered. If you do not pay close attention to the details, an incorrect test may be ordered delaying needed results and producing a lower quality of patient care as well as unnecessary cost.

Note: Save the interactive form to your flashdrive and rename for each requisition. Work from the flashdrive as you complete the assignment and resave. Complete all requisition assignments and upload at one time into the LMS on the next page.

Complete Laboratory Requisitions

Submit your laboratory requisitions for grading.

You should have five completed requisitions and completed questions for each one.

You will be scored based on the rubric for each of the requisitions (5 points in one section would indicate that all five requisitions were completed correctly for that area, 4 would indicate one of the five requisitions was not correct in that area, etc.)

A minimum score of 32 must be achieved to pass, but your goal should be 100% to avoid patient test error or additional expenses!

Note: Save the interactive form to your flasdrive and rename for each requisition. Work from the flashdrive as you complete the assignment and resave. Complete all requisition assignments and upload at one time into the LMS on the next page.

Procedure 46-1: Collect Venous Blood Sample - Vacuum Tube Single

As a healthcare professional working in a clinical laboratory setting you may be required to obtain blood samples from patients for testing. This skill is know as phlebotomy or venipuncture. You should be prepared for this skill from the previous reading, videos, and activities.

1. Review the steps taken in [Procedure 46.1 Venipuncture - Vacuum Tube Method](#).
2. View the following demonstration videos to review the steps that will be needed as you practice these skills.

Demo Videos:

- [Venipuncture Part 1 \(Links to an external site.\)Links to an external site.](#)
- [Venipuncture Part 2 \(Links to an external site.\)Links to an external site.](#)

Handouts:

- A [script](#) is a recommendation for laboratory professionals to memorize and use each time your work with a patient preparing to obtain a specimen. It will help you remember to ask the important quesitons each and every time. There are two versions included.
 - [Specimen Collection Process](#) - know this process and follow it carefully.
3. [Review the Best Phlebotomy Practices reference sheet](#) from Greiner Bio-One. Ask your instructor for assistance as you begin practice on the mannequin. You should use these practices with the mannequin to become familiar with handling and use of the equipment while following the step by step guidelines of [Procedure 46-1](#)
 4. Once you are comfortable with the mannequin you will obtain blood samples from classmates or friends and family (they must be 18 years or older and have signed the [Liability Waiver Consent Form](#).) Your instructor must be present at the first venipuncture, and is available for all others as needed.
 5. It is recommended that you practice these skills until you have successfully obtained a single vacutainer tube of blood from a live subject a minimum of five times. These must be documented on the [Procedure Documentation](#) form and uploaded into the LMS when completed.
 6. You will be assessed in the Summative Assessment Group 1 for these skills based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 46-1: Collect Venous Blood Sample - Vacuum Tube Single Doc Submission

1. Submit your Venipuncture Documentation form for single tube draw within the LMS for credit.
2. Have your instructor sign off your skills sheet for the Procedure 20-1 demonstration for single tube draw.

Procedure 46-1: Collect Venous Blood Sample - Vacuum Tube Double plus Processing

Now that you have become proficient in obtaining a single tube of blood through venipuncture you will practice obtaining two tubes of blood. This is an essential skill since it is typical to draw multiple tubes of blood for patient testing. It will require that you are stable throughout the draw begin careful to anchor your hand so that no needle movement occurs during the blood collection. Remember to *follow the correct order of tube draw* as you now practice with multiple tubes. In addition to the blood draw you will now be processing the samples as well.

1. View the following demonstration videos to review the steps or specimen processing including centrifuging the specimens.

Demo Videos:

- [Specimen Handling \(Links to an external site.\)](#)[Links to an external site.](#)
- All labeling of specimens should now include:
 - Patient's full name
 - Patient's date of birth
 - Date of collection
 - Time of collection
 - Include your initials
- [Centrifuge Serum \(Links to an external site.\)](#)[Links to an external site.](#)
 - Centrifuge Notes: After obtaining the blood sample complete the processing required for the chosen tests. (Remember: Red top no additive tubes must be allowed to sit for 45-60 minutes to coagulate before centrifuging, SST tubes must be allowed to sit for 30-45 minutes to coagulate before centrifuging, if plasma samples are needed the tube with the anticoagulant additive should be centrifuged within 10 minutes of collection.)
 - Specimen Transfer Notes: If the specimen needs to be transferred to a separate collection tube be sure to relabel with the following items:
 - Patient's full name
 - Patient's date of birth
 - Date of collection
 - Time of collection
 - Content e.g. serum or plasma (if plasma also indicate the tube additive e.g. heparin, EDTA)
 - Include your initials

2. Choose two tests from the [Pipette and Pour Lab](#) sheet to practice for each draw.

3. Complete a [laboratory requisition](#) for the chosen lab test using patient information from your phlebotomy volunteer (ask them to complete the patient information and use this to verify name, DOB, etc.) as you complete the remaining items.

Follow the required test protocols for the chosen test which may include different tubes, special patient preparation, or site preparation. This is to help prepare you for different types of test requirements that you must be aware of and follow.

4. Once again, follow the steps taken in [Procedure 46.1 Venipuncture - Vacuum Tube Method](#)

5. You will begin by asking your instructor for assistance as you begin the first practice. Follow the step by step guidelines of Procedure 46-1.

6. Obtain blood samples from classmates or friends and family (they must be 18 years or older and have signed the [Liability Waiver](#).) Your instructor must be present at the first double draw venipuncture, and is available for all others as needed

7. Process the specimen as indicated by the chosen test.

8. It is recommended that you practice these skills until you have successfully obtained a double tube draw of vacutainer tubes of blood from a live subject a minimum of five times. These must be documented on the [Procedure Documentation](#) form and uploaded into the LMS when completed.

9. You will be assessed in the Summative Assessment Group 1 for these skills based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 46-1: Collect Venous Blood Sample - Vacuum Tube Double plus Processing Doc Submission

1. Submit your Venipuncture Documentation form for double tube draw within the LMS for credit.
2. Have your instructor sign off your skills sheet for the Procedure 20-1 demonstration for double tube draw.

Phlebotomy Spelling List

As a healthcare professional it is important that you develop the ability to correctly spell the sometimes complicated words used in the medical field. Any information that may be put directly into patient's medical records or information sent to colleagues or other facilities must be accurate for reasons of patient care and for legal reasons.

Open the Phlebotomy [Spelling List](#). You will see twenty words (usually part of your vocabulary list in the front of the chapter of your textbook). The first word is the correct spelling of the word and the form that you will be tested on. The second word is a phonetic version of that word. Practice the correct spelling of each word.

When you are ready you must come to the classroom testing area to take the spelling test. Within the test will be a visual display of the phonetic spelling of each of the words on the spelling list, a link that you can click on to hear each word pronounced, and a box in which you will type in the correct spelling of each word.

Phlebotomy Spelling Test- Requires Respondus LockDown Browser

Instructions

You must come to the classroom testing center to take this Quiz. You will log into the testing computer in Lockdown Browser. An instructor will need to input a code to give you access to the quiz. You will see the phonetic spelling of the words from the Spelling list, have the opportunity to listen to the pronunciation of the word, and then

you must type the correctly spelled word into the box. You must get 80% to pass this quiz. You have a total of three attempts. Have your instructor sign off the test score on your Skills Sheet.

Testing Procedures:

1. Click **Take this Quiz** link.
2. Click the play button to listen to the word, then type that word correctly.
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Procedure 46-2: Collect Venous Blood Sample - Syringe

Now that you have become proficient in obtaining a single and double vacuum tubes of blood through venipuncture you will practice collection with a syringe. The use of the syringe allows you to control the amount of pressure or draw being exerted within the vein as you pull back on the plunger to withdraw the blood sample. This control is not possible with a vacuum tube. This skill is important when a patient has very small or fragile veins that may collapse with too much pressure or draw.

There are additional safety precautions necessary for the patient and the phlebotomist. You must ensure that no air is in the syringe prior to insertion of the needle, and that none would be allowed into the vein. This protects the patient.

You must also be more careful regarding accidental needle stick injury to yourself as the phlebotomist since there will be additional steps to transfer the blood from the syringe and into a vacuum tube after the venipuncture.

1. View the following demonstration videos to review the steps of venous blood collection using a syringe.

Demo Videos:

- [Syringe Draw \(Links to an external site.\)Links to an external site.](#) (NOTE: Blood should now be transferred only with a safety transfer device and not directly with syringe and needle as shown here - this is an old protocol and not within OSHA Standards.)
 - [Review of Syringe Draw from Basic Venipuncture \(Links to an external site.\)Links to an external site.](#)
2. Once again, follow the steps taken in [Procedure 46-2 Collect Venous Blood Sample - Syringe](#)
 3. You will begin by asking your instructor for assistance as you begin. **All syringe draws must have the oversight of the instructor.** Follow the step by step guidelines of Procedure 46-2.
 4. Obtain blood samples from classmates or friends and family (they must be 18 years or older and have signed the [Liability Waiver](#).)
 5. It is recommended that you practice these skills until you have successfully obtained a blood sample using a syringe a couple of times. These must be documented on the [Procedure Documentation](#) form and uploaded into the LMS when completed.
 6. You will be assessed in the Summative Assessment Group 1 for these skills based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 46-2: Collect Venous Blood Sample - Syringe Doc Submission

1. Submit your Venipuncture Documentation form for the syringe draws within the LMS for credit.

2. Have your instructor sign off your skills sheet for the Procedure 20-2 demonstration for double tube draw.

Procedure 46-3: Collect Venous Blood Sample - Winged Butterfly Needle

Now that you have become proficient in obtaining a single and double vacuum tubes of blood and use of a syringe for venipuncture you will practice collection with a winged butterfly needle. The use of the winged butterfly needle allows you to draw blood from the dorsal side of the hand when there are no accessible veins in the antecubital area of the arm. The technique includes a lower angle of insertion to reduce the chance of patient injury.

Use of the butterfly needle should be limited due to the greater chance of hemolysis of the blood sample as well as the increased cost to the facility for supplies.

You must also be more careful regarding accidental needle stick injury to yourself as the phlebotomist with the additional movement of the butterfly needle tubing.

1. View the following demonstration videos to review the steps of venous blood collection using a syringe.

Demo Videos:

- [Winged Butterfly Needle \(Links to an external site.\)Links to an external site.](#)
 - Review of [Blood Collection Using a Winged Butterfly Needle from Basic Venipuncture \(Links to an external site.\)Links to an external site.](#)
2. Once again, follow the steps taken in [Procedure 46-3 Winged Butterfly Needle](#)
 3. You will begin by asking your instructor for assistance as you begin your first practice. Follow the step by step guidelines of Procedure 46-3. Use both vacuum tubes and a syringe in separate attempts to be familiar with how each is used with the butterfly needle.
 4. Obtain blood samples from classmates or friends and family (they must be 18 years or older and have signed the [Liability Waiver](#).)
 5. It is recommended that you practice these skills until you have successfully obtained a blood sample using a winged butterfly needle a couple of times. These must be documented on the [Procedure Documentation](#) form and uploaded into the LMS when completed.
 6. You will be assessed in the Summative Assessment Group 1 for these skills based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 46-3: Collect Venous Blood Sample - Winged Butterfly Needle Doc Submission

1. Submit your Venipuncture Documentation form for your winged butterfly draws within the LMS for credit.
2. Have your instructor sign off your skills sheet for the Procedure 20-2 demonstration for double tube draw.

Phlebotomy Summative Performance Assessment

1. Schedule a time with your instructor to complete the summative assessments for each of the phlebotomy skills.

You may complete these together or separate them as needed for access to live subjects to perform the venipunctures.

2. Print the Requisition Form for the specific pass-off procedure (see below). Use this form for information on the requested test, materials needed, etc. Ask your patient to complete their name and date of birth on the requisition form then complete remaining areas.

3. You must complete each skill and submit documentation on the [Accessibility score: High Click to improve Procedure Form](#) for each (this can be on the same documentation form).

4. Each skill will be assessed based on the procedure checklist. Print a copy of the procedure and provide to the instructor at the time of assessment. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

- [Accessibility score: Low Click to improve Print Procedure 46.1 Venipuncture - Vacuum Tube Method](#)
 - [Accessibility score: High Click to improve Print Requisition form for 46.1](#)
- [Accessibility score: Low Click to improve Print Procedure 46.2 Venipuncture - Syringe Method](#)
 - [Accessibility score: High Click to improve Print Requisition form for 46.2](#)
- [Accessibility score: Low Click to improve Print Procedure 46.3 Venipuncture - Winged Butterfly Needle Method](#)
 - [Accessibility score: High Click to improve Print Requisition form for 46.3](#)

Module 2 : Clinical Lab Basics Introduction

Laboratory medicine, or clinical pathology, is the medical discipline that applies clinical laboratory science and technology to the care of patients. The clinical laboratory is the place in which a collected specimen is analyzed and evaluated. Tests are performed manually (by hand) or through automation (using specialized instruments). It is important to understand the different areas of the laboratory and to follow the safety guidelines.

Competencies

- Utilize basic concepts of clinical lab procedures
- Practice clinical laboratory safety procedures
- Demonstrate proper use of laboratory equipment

When you have completed this module you will be able to:

- Discuss the divisions of the clinical laboratory
- Practice laboratory safety
- Use a microscope
- Perform laboratory equipment maintenance

Skills Sheet Module 2

In this module, you will need to download and print the Skills Sheet. This will help you keep track of assignments and assessments that need to be completed in this module. Have your instructor pass off each skill or activity that is required as you work through the module. This is retained in your student file upon completion. You will be doing this for each module.

[Skills Sheet Module 2](#)

The video and reading the chapters in your textbook will provide information that will prepare you to begin your career as a Clinical Lab Assistant by introducing you to the world of healthcare and your place within it.

The learning activities will help you remember the details of the chapter and then you will be able to use the powerpoint to review the highlights. After that you can check your understanding with the Knowledge Check.

Instructional Activities Chapter 44

1. Read Chapter 44 in the *Kinn's The Clinical Medical Assistant* text.

Practice Chapter 44

Now that you have read the chapter, complete the exercises indicated below in the Study Guide. (Note: Any exercises that ask you to join an outside organization, contact or go to outside facilities can be disregarded). These exercises will help you use the information you learned so that it will be better understood and retained in memory. Use the answer key to self-check your work and correct mistakes you may have made. Have your instructor sign off completion of these exercises on your Skills Sheet.

Complete the following activities to practice what you have just learned. The learning activities will help you remember the details of the chapter.

Complete the Study Guide workbook exercises for Chapter 44.

1. Vocabulary Review
2. Skills and Concepts
3. Case Studies
4. Workplace Applications
5. Material Safety Data Sheet Sections 1-10
6. Medical Record Activities
7. Check your understanding by using the [self-check answer key](#).
8. Have your instructor sign off the completed assignments on your Skills Sheet.

Use the following StudyStack interactive activities for review: Flashcards, Matching, Study Stack, Study Table, Target, Type-in, Hangman, Crossword, Hungry Bug, Bug Match, Unscramble, Chopped, Quiz, and Test. The 'Target' activity has an interactive image to review letter layout.

- [Quality Assurance \(Links to an external site.\)Links to an external site.](#)
- [Clinical Lab Areas \(Links to an external site.\)Links to an external site.](#)
- [Lab Temperatures \(Links to an external site.\)Links to an external site.](#)

Making a Blood Smear for Microscope Viewing

It is important that you know how to use and maintain a microscope.

You will make a blood smear so that you have an interesting sample to view as you become skilled at focusing the microscope.

You will need to obtain a sample of blood in an EDTA tube (you may also use samples stored in the refrigerator but they may have changes of aging crenated cells.) Using a pipette put a small drop of well mixed blood near the

frosted edge of the slide. Holding the spreader slide create an even smear of the blood sample that has a feathered edge. This is the area where the cells would be viewed since they have been thinned to a single cell layer.

You should be able to see many erythrocytes (red blood cells), a few leukocytes (white blood cells), and some platelets. We will not be staining the slide so there will be less ability to define the specific type of leukocytes seen. The ratio of RBC to WBC is roughly 1000:1.

View the [Blood Smear \(Links to an external site.\)](#)[Links to an external site.](#)Demo video to help you prepare to perform this skill. Ask your instructor to assist you as you begin. Once you have created a good slide move to the next lesson to look at it under the microscope.

Procedure 44-2: Use the Microscope and Perform Routine Maintenance

Now it is time to review use of the microscope so you can look at the blood smear you have made.

1. View the [Microscope \(Links to an external site.\)](#)[Links to an external site.](#) Demo Video
2. Review the skill of [Accessibility score: Low Click to improve Procedure 44.2 Microscope Use and Maintenance.](#)
3. Using your blood smear and the microscope follow the steps to view the specimen on the Low Power Objective (10) and the High Power Objective (40). You will not be performing oil immersion steps indicated on the procedure.

**Remember use the coarse focus adjustment only on low power and the fine focus adjustment on high power to avoid damaging the microscope or the specimen.*

4. Perform the maintenance portion on the microscope once you have viewed the slide. (Use only lens paper or lens cleaning towelettes to clean the objectives or other lenses to avoid scratching them.)

It is recommended that you create and view at least five (5) slides to become proficient at the technique needed to make a good blood smear and that you can easily focus the microscope on a specimen. The cleanup and maintenance is also an important habit to maintain proper functioning of equipment in the laboratory.

Each skill will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Hazard Labels

The importance of safety in the laboratory cannot be overemphasized. Most laboratory accidents can be prevented through the use of proper techniques and common sense. Following safe practices in the laboratory requires a personal commitment and concern for others; an unsafe act may also harm an innocent bystander without harming the person who performs the act.

1. Understanding the labeling used in the laboratory is important. Review the [Accessibility score: Medium Click to improve NFPA Labeling System Information](#) and complete the [Accessibility score: Perfect Click to improve NFPA Labeling System Interactive Assignment](#)
2. Upload the completed item into the LMS for credit.

Note:

- Save all links with fillable PDF documents for assignments to your flashdrive BEFORE filling them out
- Complete the task given in the assignment
- Resave the completed form with your name and assignment title to your flashdrive

- Upload saved and completed file into Canvas

Safety Data Sheets

Safety Data Sheets (SDS or formerly MSDS) are an important tool to know how to use in case of accidental spill or exposure to chemicals used in the laboratory. They provide information about the chemical component, hazardous ingredient, physical data, fire and explosion data, health hazard data, reactivity data, spill or leak information, and special protection information.

1. Read the [Accessibility score: Medium Click to improve Mind the label GHS vs MSDS document](#) regarding government changes towards GHS.
2. View the [Accessibility score: Medium Click to improve OSHA MSDS Overview](#) powerpoint.
3. Read and complete the [Accessibility score: High Click to improve Material Safety Data Sheets](#) document using either an online search or the MSDS (SDS) binder in the classroom laboratory (ask your instructor where to find this item).
4. Submit the completed document through Canvas to receive credit.

Note:

- Save all links with fillable PDF documents for assignments to your flashdrive BEFORE filling them out
- Complete the task given in the assignment
- Resave the completed form with your name and assignment title to your flashdrive
- Upload saved and completed file into Canvas

Clinical Laboratory Spelling List

As a healthcare professional it is important that you develop the ability to correctly spell the sometimes complicated words used in the medical field. Any information that may be put directly into patient's medical records or information sent to colleagues or other facilities must be accurate for reasons of patient care and for legal reasons.

Open the [Clinical Laboratory Spelling List](#). You will see twenty words (usually part of your vocabulary list in the front of the chapter of your textbook). The first word is the correct spelling of the word and the form that you will be tested on. The second word is a phonetic version of that word. Practice the correct spelling of each word.

When you are ready you must come to the classroom testing area to take the spelling test. Within the test will be a visual display of the phonetic spelling of each of the words on the spelling list, a link that you can click on to hear each word pronounced, and a box in which you will type in the correct spelling of each word.

Clinical Laboratory SpellingTest- Requires Respondus LockDown Browser

Instructions

You must come to the classroom testing center to take this Quiz. You will log into the testing computer in Lockdown Browser. An instructor will need to input a code to give you access to the quiz. You will see the phonetic spelling of the words from the Spelling list, have the opportunity to listen to the pronunciation of the word, and then you must type the correctly spelled word into the box. You must get 80% to pass this quiz. You have a total of three attempts. Have your instructor sign off the test score on your Skills Sheet.

Testing Procedures:

1. Click **Take this Quiz** link.
2. Click the play button to listen to the word, then type that word correctly.
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Summary Chapter 44

View [Chapter 44 slides](#) to review the module information and determine if you need to review any concepts in more detail. This will provide a broad overview of the highlights of the chapter content.

Knowledge Check Chapter 44

Chapter 44 quiz on Evolve may be used first as a Knowledge Check. This is an optional assignment. You do not need to submit anything for this assignment.

In [Evolve \(Links to an external site.\)](#)Links to an external site., within Student Resources, go to the correct chapter and click on the link. Click on the Chapter review quiz to complete.

Kinn's Chapter 44 Practice Quiz

Instructions

This quiz can be taken inside or outside the classroom. It does not require a password. It will not count towards your grade. It is highly recommended that you take it and pass at a minimum of 80% to determine if any content areas need to be reviewed before going to the next module.

Testing Procedures:

1. Click **Take this Quiz** link.
2. Read each question and choose the best answer(s).
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Module 3 : Hematology / Serology Introduction

The human body contains an average of 10 to 12 pints of blood. The heart circulates the blood through the circulatory system more than 1,000 times every day. More than 70,000 miles of passageways, most of which are narrower than a human hair, carry blood throughout the body. The blood is composed of cellular and liquid components. The circulating blood supplies the body's cells with nutrients and oxygen. The blood carries away carbon dioxide and urea, the waste products of normal cell activity. Blood tests are done routinely in the hematology, immunohematology (blood banking), chemistry, and immunology (serology) departments of the laboratory. You will have the opportunity to learn and practice some of these blood tests.

Competencies

- Discuss CLIA waived testing in hematology and serology
- Demonstrate CLIA waived testing in hematology and serology

When you have completed this module you will be able to:

- Perform a capillary puncture
- Perform hematology testing
- Perform serology testing
- Describe normal ranges of common laboratory tests
- Identify components and function of blood
- Perform Quality Assurance and maintenance of laboratory equipment

Skills Sheet Module 3

In this module, you will need to download and print the Skills Sheet. This will help you keep track of assignments and assessments that need to be completed in this module. Have your instructor pass off each skill or activity that is required as you work through the module. This is retained in your student file upon completion. You will be doing this for each module.

[Skills Sheet Module 3](#)

The video and reading the chapters in your textbook will provide information that will prepare you to begin your career as a Clinical Lab Assistant by introducing you to the world of healthcare and your place within it.

The learning activities will help you remember the details of the chapter and then you will be able to use the powerpoint to review the highlights. After that you can check your understanding with the Knowledge Check.

Instructional Activities Chapter 47

1. Read Chapter 47 in the *Kinn's The Clinical Medical Assistant* text.
2. View the Elsevier Medical Assisting Procedures Video Skills clips in [Evolve \(Links to an external site.\)Links to an external site.](#) to prepare for skills practices
 - Assisting in the analysis of Blood
 - Perform a hemoglobin test

Practice Chapter 47

Now that you have read the chapter, complete the exercises indicated below in the Study Guide. (Note: Any exercises that ask you to join an outside organization, contact or go to outside facilities can be disregarded). These exercises will help you use the information you learned so that it will be better understood and retained in memory. Use the answer key to self-check your work and correct mistakes you may have made. Have your instructor sign off completion of these exercises on your Skills Sheet.

Complete the following activities to practice what you have just learned. The learning activities will help you remember the details of the chapter.

Complete the Study Guide workbook exercises for Chapter 47.

1. Vocabulary Review
2. Skills and Concepts
3. Hematology in the Physician Office Laboratory

4. Hematology in the Reference Laboratory
5. Blood Chemistry
6. Case Studies
7. Workplace Application
8. Medical Record Activity
9. Check your understanding by using the [self-check answer key](#).
10. Have your instructor sign off the completed assignments on your Skills Sheet

Use the following StudyStack interactive activities for review: Flashcards, Matching, Study Stack, Study Table, Target, Type-in, Hangman, Crossword, Hungry Bug, Bug Match, Unscramble, Chopped, Quiz, and Test. The 'Target' activity has an interactive image to review letter layout.

- [Hematology \(Links to an external site.\)Links to an external site. \(Links to an external site.\)Links to an external site.](#)
- [Blood Chemistry \(Links to an external site.\)Links to an external site.](#)
- [Blood Panels \(Links to an external site.\)Links to an external site.](#)

* Optional Activity for Understanding of Blood Typing:

- [Interactive Blood Typing Game \(Links to an external site.\)Links to an external site.](#)

Capillary Puncture Training Video

The following capillary training video will provide instruction as you prepare to perform capillary punctures. You will be performing these venipunctures on classmates. You may also bring in friends and family willing to help you in this learning activity, but they must be at least 18 years old and must sign the [Liability Waiver](#) before the procedure and witnessed by your instructor.

Watch the following video.

(You will be asked to sign in and enter a password - for this video the access password is 'password'.)

Video 4: Skin Punctures and Newborn Screens (Links to an external site.)Links to an external site.:

This Applied Phlebotomy training video, the most current and comprehensive available on the subject, demonstrates the proper technique for performing fingersticks, heelsticks, and newborn screening collections. Detailed information, demonstrations, and graphic animations are all based on the latest CLSI standards and OSHA guidelines. Includes written CE questions for in-house CE programs or for requesting P.A.C.E.® credit. Running time: 32 minutes.

Learning Objectives: At the conclusion of the presentation, participants will be able to...

1. demonstrate the proper procedure for capillary puncture;
2. identify the acceptable sites for skin puncture on newborns, infants, and older patients;
3. submit properly collected newborn screen cards for testing .

Procedure 46-4: Capillary Puncture

Capillary punctures for point of care testing is a common practice. You must learn the proper techniques to ensure good specimens and accurate results.

1. Review the steps in [Procedure 46.4 Capillary Puncture Blood Sample](#)
2. View the demo videos for review of the skill practice of capillary puncture.

(You will be using only automated safety lancets in your practices and not the ones seen in this video.)

Demo Videos:

- [Lancet Puncture Part 1 \(Links to an external site.\)Links to an external site.](#)
 - [Lancet Puncture Part 2 \(Links to an external site.\)Links to an external site.](#)
3. The actual performance of this skill will be in conjunction with glucose, hematocrit, and hemoglobin testing. These will be performed in the next several assignments. You may complete one or multiples of these tests with a single capillary puncture.

You will be assessed in the Summative Assessment Group 1 for these skills based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 44-1: Quality Control on a Glucometer - Record of Flow Sheet

Quality Control (QC) is critical for any instrument that you are using that provides patient test results. If QC and calibrations are not performed there is no guarantee that the result is accurate. This can create serious issues in patient care and the decisions made by the physician based upon test results.

You will practice QC prior to performing a glucose test from a capillary puncture. This is a common blood test to monitor diabetes mellitus or perhaps also hypoglycemia.

Instructions:

1. Review the steps for QC in [Accessibility score: Low Click to improve Procedure 44.1 Glucometer Quality Control Calibration Check](#)
2. View the [Glucose \(Links to an external site.\)Links to an external site.](#) Demo video and review the normal ranges of glucose in your text book. (You must know these values)
 - *Remember it is important to ask the patient if they are fasting or not, and document results accordingly.
 - FBS: XX mg/dL (for fasting blood sugar)
 - NFBS: XX mg/dL (for non-fasting blood sugar)
3. Ask your instructor to assist you in familiarization with the classroom laboratory glucometer.
4. Perform the QC Calibration check and document on [Accessibility score: Low Click to improve Work Product 44-1 Glucose Control Log.](#)
5. Obtain a capillary blood sample following procedure [Accessibility score: Low Click to improve Procedure 46.4 Capillary Puncture Blood Sample](#) and perform a blood glucose test.
6. Document your results on the [Accessibility score: Low Click to improve Lab Data Flowsheet](#) and document the procedure on the [Accessibility score: High Click to improve Procedure Documentation Form](#)
7. It is recommended that you practice this a minimum of five (5) times to become proficient.

NOTE: UPLOAD ALL INTERACTIVE ASSIGNMENTS AT ONE TIME (Resubmitting deletes the first submission)

- Save all links with fillable PDF documents for assignments to your flashdrive BEFORE filling them out
- Complete the task given in the assignment
- Resave the completed form with your name and assignment title to your flashdrive
- Upload saved and completed file into Canvas

You will be assessed in the Summative Assessment Group 2 for these skills based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 47-2: Perform Microhematocrit

The hematocrit is a common blood test performed for either a finger puncture or a venous blood sample to test for anemia. It determines the percentage of red blood cells within the blood sample.

Instructions:

1. Review the steps for [Accessibility score: Low Click to improve Procedure 47.2 Perform Microhematocrit.](#)
2. View the [Hematocrit \(Links to an external site.\)Links to an external site.](#) Demo video and review the normal ranges for hematocrits. (You must know these values)
 - *Remember it is important to document results accurately.
 - Hct: XX %
3. Ask your instructor to assist you in familiarization with the classroom laboratory microhematocrit centrifuge and supplies including both hematocrit result readers.
5. Obtain a capillary blood sample following procedure [Procedure 46.4 Capillary Puncture Blood Sample](#) or a whole blood sample as noted in Procedure 47-2 and perform a microhematocrit.
6. Document your results on the [Accessibility score: Low Click to improve Lab Data Flowsheet](#) and document the capillary puncture procedure if done on the [Accessibility score: High Click to improve Procedure Documentation Form](#)
7. It is recommended that you practice this a minimum of five (5) times to become proficient.

NOTE: UPLOAD ALL INTERACTIVE ASSIGNMENTS AT ONE TIME (Resubmitting deletes the first submission)

- Save all links with fillable PDF documents for assignments to your flashdrive BEFORE filling them out
- Complete the task given in the assignment
- Resave the completed form with your name and assignment title to your flashdrive
- Upload saved and completed file into Canvas

You will be assessed in the Summative Assessment Group 2 for these skills based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 47-3: Perform Hemoglobin Test

A complimentary test to the hematocrit test is the hemoglobin test. These are often completed together as an H&H. The hemoglobin test also checks for anemia, but instead of a percentage of RBC's it determines the amount

of the protein 'hemoglobin' that is available in the cells. This important protein binds oxygen and carbon dioxide to it for transport within the body.

**Glucose also binds to hemoglobin and can be tested to check for a diabetic patients overall glucose control by testing for the 'glycosulated hemoglobin' also called a HgbA1C or glycohemoglobin. This is a very different test that the hemoglobin test alone, be alert to these two unique tests.*

1. Review the steps for [Accessibility score: Low Click to improve Procedure 47.3 Perform Hemoglobin Test](#).
2. View the [Hemoglobin \(Links to an external site.\)Links to an external site.](#)Demo video and review the normal ranges for hemoglobin.
 - *Remember it is important to a document results accurately.
 - Hgb: XX g/dL
3. Ask your instructor to assist you in familiarization with the classroom laboratory Hemoglobinometer.
4. Perform the QC Calibration check and document on the classroom log.
5. Obtain a capillary blood sample following procedure [Accessibility score: Low Click to improve Procedure 46.4 Capillary Puncture Blood Sample](#)and perform a Hemoglobin test.
6. Document your results on the [Accessibility score: Low Click to improve Lab Data Flowsheet](#) and document the procedure on the [Accessibility score: High Click to improve Procedure Documentation Form](#)
7. It is recommended that you practice this one or two times to become proficient.

NOTE: UPLOAD ALL INTERACTIVE ASSIGNMENTS AT ONE TIME (Resubmitting deletes the first submission)

- Save all links with fillable PDF documents for assignments to your flashdrive BEFORE filling them out
- Complete the task given in the assignment
- Resave the completed form with your name and assignment title to your flashdrive
- Upload saved and completed file into Canvas

You will be assessed in the Summative Assessment Group 2 for these skills based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Newborn Screening

Newborn Screening can vary from state to state but is a very important test to determine potential metabolic or other disorders that can be managed if diagnosed early.

1. Watch Part 1 and Part 2 of [Utah Department of Health Newborn Screening \(Links to an external site.\)Links to an external site.](#) video and read through the testing material to become familiar with the procedure and materials needed. (Ask your instructor if you need assistance finding the video - it is located on the website under 'Obtaining an Acceptable Specimen'.)
 2. Read the article [Newborn Screens: Why and How?](#)
- Presley, C. H. (2008, January). Newborn Screens: Why and How? *Phlebotomy Today*, 9(1).
3. View the [Newborn Screen 'PKU \(Links to an external site.\)Links to an external site.'](#) Demo video for review.
 3. Review the steps of this procedure with your instructor and document as though you had actually completed this test on a patient using the [Procedure Documentation Form](#)

Newborn Screening

Submit your documentation for the Newborn Screen procedure. It should include:

- Baby's name and DOB
- Procedure performed and location of lancet puncture
- Specimen collected (how many circles filled)
- Test card number and/or copy of test form
- How and when specimen was processed (mailed after drying period of how long)
- Initial of the healthcare professional completing the procedure

Procedure 47-4: Erythrocyte Sedimentation Rate (Westergren ESR)

The Erythrocyte Sedimentation Rate (ESR) is a baseline test performed to identify if inflammation is present in the patient. Inflammation can be caused by many things, and the test does not specify the cause, only the presence of inflammation. The ESR typically done is the Westergren method.

1. Review the steps for [Accessibility score: Low Click to improve Procedure 47.4 Erythrocyte Sedimentation Rate \(Westergren ESR\)](#)
2. View the [ESR \(Links to an external site.\)Links to an external site.](#) Demo video and review the normal ranges for this test based on age and gender. (You must know these ranges)
 - *Remember it is important to a document results accurately.
 - ESR: XX mm/hr
3. Ask your instructor to assist you in familiarization with the Westergren testing supplies in the classroom laboratory.
5. Obtain a whole blood sample from a venous draw using a lavender EDTA tube.
6. Complete the steps of the test.
6. Document your results on the [Accessibility score: Low Click to improve Lab Data Flowsheet](#) and document the procedure on the [Accessibility score: High Click to improve Procedure Documentation Form](#)
7. It is recommended that you practice this one or two times to become proficient.

NOTE: UPLOAD ALL INTERACTIVE ASSIGNMENTS AT ONE TIME (Resubmitting deletes the first submission)

- Save all links with fillable PDF documents for assignments to your flashdrive BEFORE filling them out
- Complete the task given in the assignment
- Resave the completed form with your name and assignment title to your flashdrive
- Upload saved and completed file into Canvas

You will be assessed in the Summative Assessment Group 2 for these skills based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

CBC and CMP Procedure

You will now be able to perform two automated tests on your own blood sample or on someone else that has agreed to this procedure. One will be a hematology test and the other a blood chemistry test. Upon completion you will complete a written assignment based on the tests and results obtained.

1. Look up information about the two tests that you will perform on the automated hematology and chemistry machine in the classroom laboratory

- Complete Blood Count (CBC)
- Comprehensive Metabolic Panel (CMP)

You should be able to identify the following:

- Reason for performance of this test
- Normal Ranges for each component of the tests
- Causes of abnormal results

You may use the [ARUP Laboratory \(Links to an external site.\)Links to an external site.](#) website, the [LabCorp \(Links to an external site.\)Links to an external site.](#) website, information in the [CBC and CMP Handout](#)

Online References:

- [Medline Plus - Comprehensive Metabolic Panel \(Links to an external site.\)Links to an external site.](#)
- [Medline Plus - Complete Blood Count \(Links to an external site.\)Links to an external site.](#)
- [Lab Tests Online - Comprehensive Metabolic Panel \(Links to an external site.\)Links to an external site.](#)
- [Lab Tests Online - Complete Blood Count \(Links to an external site.\)Links to an external site.](#)

2. Review the Quick Reference Operating Instructions for the two automated blood testing equipment that you will be using in the classroom laboratory.

- The Piccolo is an automated blood chemistry machine.
 - [Piccolo Quick Reference Operating Instructions](#)
- The Emerald is an automated hematology machine.
 - [Emerald Quick Reference Operating Instructions](#)

3. After review of the information ask your instructor to give you additional instructions relating to these two tests and get you started on the equipment. You will need to obtain the testing materials from your instructor.

Test 1:

- Obtain a blood sample using a green heparinized tube
- Complete the testing for a CMP on the Piccolo
- Save the results sheet that will be printed for use on the written assignment.

Test 2:

- Obtain a blood sample using a lavender EDTA tube
- Complete the testing for a CBC on the Emerald
- Save the results sheet that will be printed for use on the written assignment.

Note:

You will be defining these terms that may be shown on results.

- QC = quality control
- Hem = hemolysis
- Lip - lipemic
- Ict - icteric

CBC and CMP Written Assignment

Complete the [Accessibility score: Medium Click to improve CBC and CMP worksheet](#) after completion of these the CMP and CBC.

Upload the finished document into the LMS for grading.

***Note:**

You do not have to disclose test results done on your own testing if you are uncomfortable doing so or feel it is a violation of your privacy and Protected Health Information.

Hematology / Serology Spelling List

As a healthcare professional it is important that you develop the ability to correctly spell the sometimes complicated words used in the medical field. Any information that may be put directly into patient's medical records or information sent to colleagues or other facilities must be accurate for reasons of patient care and for legal reasons.

Open the [Hematology/Serology Spelling List](#). You will see twenty words (usually part of your vocabulary list in the front of the chapter of your textbook). The first word is the correct spelling of the word and the form that you will be tested on. The second word is a phonetic version of that word. Practice the correct spelling of each word.

When you are ready you must come to the classroom testing area to take the spelling test. Within the test will be a visual display of the phonetic spelling of each of the words on the spelling list, a link that you can click on to hear each word pronounced, and a box in which you will type in the correct spelling of each word.

Hematology/Serology Spelling Test- Requires Respondus LockDown Browser

Instructions

You must come to the classroom testing center to take this Quiz. You will log into the testing computer in Lockdown Browser. An instructor will need to input a code to give you access to the quiz. You will see the phonetic spelling of the words from the Spelling list, have the opportunity to listen to the pronunciation of the word, and then you must type the correctly spelled word into the box. You must get 80% to pass this quiz. You have a total of three attempts. Have your instructor sign off the test score on your Skills Sheet.

Testing Procedures:

1. Click **Take this Quiz** link.

2. Click the play button to listen to the word, then type that word correctly.
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Summary Chapter 47

View [Chapter 47 slides](#) to review the module information and determine if you need to review any concepts in more detail. This will provide a broad overview of the highlights of the chapter content.

Knowledge Check Chapter 47

Chapter 47 quiz on Evolve may be used first as a Knowledge Check. This is an optional assignment. You do not need to submit anything for this assignment.

In [Evolve \(Links to an external site.\)](#)Links to an external site. within Student Resources, go to the correct chapter and click on the link. Click on the Chapter review quiz to complete.

Kinn's Chapter 47 Practice Quiz

Instructions

This quiz can be taken inside or outside the classroom. It does not require a password. It will not count towards your grade. It is highly recommended that you take it and pass at a minimum of 80% to determine if any content areas need to be reviewed before going to the next module.

Testing Procedures:

1. Click **Take this Quiz** link.
2. Read each question and choose the best answer(s).
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Module 4 : Microbiology / Immunology Introduction

In this module you will learn about the major types of infectious agents; the quality control issues related to the collection and handling of microbiologic specimens; and common microbiology and immunology tests that are CLIA waived.

Competencies

- Discuss laboratory testing in microbiology
- Demonstrate laboratory testing in microbiology

When you have completed this module you will be able to:

- Describe various types of microorganisms
- Cite the protocols for the collection, transport, and processing of specimens
- Describe and perform CLIA-waived microbiology tests

- Describe and perform CLIA-waived immunology tests

Skills Sheet Module 4

In this module, you will need to download and print the Skills Sheet. This will help you keep track of assignments and assessments that need to be completed in this module. Have your instructor pass off each skill or activity that is required as you work through the module. This is retained in your student file upon completion. You will be doing this for each module.

[Skills Sheet Module 4](#)

The video and reading the chapters in your textbook will provide information that will prepare you to begin your career as a Clinical Lab Assistant by introducing you to the world of healthcare and your place within it.

The learning activities will help you remember the details of the chapter and then you will be able to use the powerpoint to review the highlights. After that you can check your understanding with the Knowledge Check.

Instructional Activities Chapter 48

1. Read Chapter 48 in the *Kinn's The Clinical Medical Assistant* text.

2. Read information about [Wet Mount Slides Exams](#)

Wet Mount Examinations. (1998). *American College of Physician*, (3). Retrieved from http://www.acponline.org/mle/wm_exams.htm

3. View the Elsevier Medical Assisting Procedure Video Skills clips in [Evolve \(Links to an external site.\)Links to an external site.](#) to prepare for skills practices

- Assisting in Microbiology and Immunology
 - Perform a rapid strep test
 - Perform the Quickvue + Infectious Mononucleosis test

Practice Chapter 48

Now that you have read the chapter, complete the exercises indicated below in the Study Guide. (Note: Any exercises that ask you to join an outside organization, contact or go to outside facilities can be disregarded). These exercises will help you use the information you learned so that it will be better understood and retained in memory. Use the answer key to self-check your work and correct mistakes you may have made. Have your instructor sign off completion of these exercises on your Skills Sheet.

Complete the following activities to practice what you have just learned. The learning activities will help you remember the details of the chapter.

Complete the Study Guide workbook exercises for Chapter 48.

1. Vocabulary Review
2. Skills and Concepts
3. Case Studies
4. Workplace Application 1-4
5. Check your understanding by using the [self-check answer key](#).
6. Have your instructor sign off the completed assignments on your Skills Sheet.

Use the following StudyStack interactive activities for review: Flashcards, Matching, Study Stack, Study Table, Target, Type-in, Hangman, Crossword, Hungry Bug, Bug Match, Unscramble, Chopped, Quiz, and Test. The 'Target' activity has an interactive image to review letter layout.

- [Microbiology \(Links to an external site.\)Links to an external site.](#)

Specimen Collection, Transport, and Processing

As a laboratory professional it will be important to know how to collect, transport, and process various types of specimens. Correct actions in this area will lead to accurate test results and better patient care.

1. Memorize components of TABLE 48-8 Collection, Transport, and Processing of Specimens Commonly Collected in the Physician Office Laboratory* in your text book.
2. Use the [Collection, Transport, and Processing Study Stack \(Links to an external site.\)Links to an external site.](#) to help you study.
3. Meet with your instructor to respond to questions and verbalize these protocols.
4. Ask your instructor to sign off this assignment on your Skills Sheet.

Procedure 48-1: Fecal Ova and Parasite (O&P)

As a laboratory professional you may be asked to give a patient information about stool collection requirements to test for parasites or other gastrointestinal issues.

1. Review the [Accessibility score: Low Click to improve Procedure 48.1 Fecal Specimen Collection for O & P.](#)
2. View the [Stool Specimen \(Links to an external site.\)Links to an external site.](#)Demo video.
2. Ask your instructor to review the collection containers in the classroom laboratory.

It is recommended that you practice and review on your own to become proficient at the necessary steps.

Each step will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 48-2: Rapid Strep Test

You may be required to obtain and/or process specimens for culture and sensitivity from various sources. This lab will be to collect a specimen from the oropharynx. A common pathogen found here is Streptococcus Group A that causes what is commonly called 'strep throat'. This illness causes sore throat and is often accompanied by fever, and swollen lymph glands. If diagnosed, it is typically treated with an antibiotic to destroy the invading bacteria.

1. Review the [Accessibility score: Low Click to improve Procedure 48.2 Rapid Strep.](#)
2. View the Demo videos. A culture may be obtained for CLIA waived rapid testing or for transport or plating on agar to grow out the culture and obtain a sensitivity report.
- [\(Links to an external site.\)Links to an external site.](#)
3. Read about the [signs and symptoms of streptococcal pharyngitis \(Links to an external site.\)Links to an external site.](#)
4. Ask your instructor to assist you with the CLIA waived testing materials in the classroom laboratory for Rapid Strep testing (Group A). (Also ask to view the transport swabs that may be used for direct culturing)

5. Perform several rapid strep tests following the guidelines of the procedure. Document the results on the [Accessibility score: Low Click to improve Lab Data Flow](#) sheet form.

It is recommended that you practice this skill several times to become proficient at obtaining the specimen and completing the Rapid Strep test.

Each skill will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Perform a Culture With an Agar Plate

Plating cultures on agar may be done so that the bacteria can be grown out and identified by the microbiologist or pathologist in your laboratory. There are many types of agar that may be used depending on the source of the culture. Therefore, it is very important to identify the source of material obtained for any culture. The way the plate is inoculated with the specimen may also vary depending if it is an exudate, a liquid, a fungal scraping, etc. The inoculation look size may vary as well - follow the guidelines of your laboratory!

1. View the [Accessibility score: High Click to improve Agar Plating Presentation](#)
2. Print the [Accessibility score: Perfect Click to improve Agar Inoculation Handout](#) and demonstrate the inoculation pattern that you are to follow based on the powerpoint (Techniques may vary for you based on specimen and lab preference). Turn this document in for correction and feedback.
3. Ask your instructor for assistance in obtaining the agar plate in the classroom laboratory and setting up the incubator.
4. Using a sterile swab, obtain some type of potential source of bacteria (ask your instructor for ideas - one might be to swab your antecubital area before and after an alcohol cleanse and inoculating two agar plates).
5. Inoculate the agar plate using the sterile swab first, and then the heat sterilized inoculation loop.
6. Add the sensitivity disc to an area in which bacteria has been introduced on the agar plate.
7. Label the side of the agar plate that contains the agar and culture.
8. Place the agar plate into the incubator with the agar on the top side. (If a candle jar is available it may be used to create an anaerobic environment or use an incubator with that capability based on the type of culture)
7. Document the information on the culture log sheet and allow the culture to grow out for 48 hours. You should check it at 24 hours to see if there is any growth starting.

*Most cultures are read for a preliminary reading at 24 hours and a final reading at 48 hours but there are also exceptions in which the culture may be grown out for a longer period of time such as with fungal cultures that can grow for up to one month.

Once the culture grows, you may use this growth for the next skill - Gram Staining.

Prepare a Direct Smear and Gram Stain

Often staining of specimens may be done directly from the source to the slide so that identification of the organism and treatment of the patient may be initiated.

You will be creating a smear not from the original source, but instead from the growth on your culture plate. You will then be a gram staining it to determine if there is gram positive or gram negative bacteria.

In a clinical setting, this determination is completed to help the physician choose the antibiotic most likely to be effective against the specific type of pathogenic organism.

After reading the directions on your checklist, prepare a smear from a clinical specimen or a culture medium for gram staining.

1. Watch the Demo Videos:
 - [Bacterial Smear \(Links to an external site.\)Links to an external site.](#)
 - [Gram Stain \(Links to an external site.\)Links to an external site.](#)
2. View [How to Complete a Gram Stain on a Slide to Differentiate Gram Positive and Gram Negative Bacteria \(Links to an external site.\)Links to an external site.](#)
3. Ask your instructor for assistance setting up the gram stain materials needed in the classroom laboratory.
4. Make a direct smear on a microscope slide from your bacterial source. (Remember to heat fix it!)
5. Stain the slide with the Gram Stain kit in the following order and rinsing between each application:
 - Crystal Violet
 - Gram's Iodine
 - Decolorizer
 - Counterstain (Safranin)
6. View the slide under the microscope and identify gram positive or gram negative bacteria seen.
7. Have your instructor sign off this skill on the Skills Sheet.

Procedure 48-3: Mononucleosis Test

Mononucleosis is a type of viral infection caused by the Epstein-Barr virus (EBV) that can be diagnosed using a CLIA waived test. This test reacts to the heterophile antibody produced by the patient's immune system.

1. Review [Accessibility score: Low Click to improve Procedure 48.3 CLIA Waived Mononucleosis Testing.](#)
2. Watch the Mononucleosis [Monospot \(Links to an external site.\)Links to an external site.](#)Demo video.
3. Review the information on [Mononucleosis testing and symptoms \(Links to an external site.\)Links to an external site.](#)
4. Ask your instructor for assistance with the Mononucleosis testing materials in the classroom laboratory.
5. Perform a mono test for practice.
6. Document your results on the [Accessibility score: Low Click to improve Lab Data Flowsheet](#) and [Accessibility score: High Click to improve Procedure Documentation](#) form and submit in the LMS.

Each skill will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Testing for Influenza

Influenza is another viral infection that can be tested for using either a CLIA waived test or a viral culture. It is also one of the reportable diseases that is sent to the health department for tracking.

1. *Briefly* review the information available from the [Centers for Disease Control \(Links to an external site.\)Links to an external site.](#) on Influenza testing.
2. View [Flu Test \(Links to an external site.\)Links to an external site.](#) for information about one type of CLIA waived rapid screening test for influenza that can differentiate between Type A and Type B.

It may be important for you to be able to recognize the differences in the symptoms a patient experiences to differentiate between cold and flu.

3. Review the [Accessibility score: Perfect Click to improve Influenza vs cold Handout](#)
4. Verbalize some of the primary differences to your instructor for credit.
5. Ask your instructor to sign off this skill on your Skills Sheet.

Summary Chapter 48

View [Chapter 48 slides](#) to review the module information and determine if you need to review any concepts in more detail. This will provide a broad overview of the highlights of the chapter content.

Knowledge Check Chapter 48

Chapter 48 quiz on Evolve may be used first as a Knowledge Check. This is an optional assignment. You do not need to submit anything for this assignment.

In [Evolve \(Links to an external site.\)](#)Links to an external site. within Student Resources, go to the correct chapter and click on the link. Click on the Chapter review quiz to complete.

Kinn's Chapter 48 Practice Quiz

Instructions

This quiz can be taken inside or outside the classroom. It does not require a password. It will not count towards your grade. It is highly recommended that you take it and pass at a minimum of 80% to determine if any content areas need to be reviewed before going to the next module.

Testing Procedures:

1. Click **Take this Quiz** link.
2. Read each question and choose the best answer(s).
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Module 5 : Urinalysis Introduction

Urine is the most commonly analyzed body fluid in the clinical laboratory. There are many things that can be learned about the physiology of the patient based on the results of a urine sample. In addition, because chemicals are excreted through the kidneys, urinalysis can be used to determine the effectiveness of medications and/or the possibility of urinary system side effects from prescribed drugs. You will have the opportunity to learn about the components of urine and complete testing of urine samples.

Competencies

- Discuss laboratory testing of urine samples
- Demonstrate laboratory testing of urine samples

When you have completed this module you will be able to:

- Describe the anatomy and physiology of the urinary tract
- Discuss the formation and elimination of urine
- Explain urine collection techniques
- Perform a physical, chemical, and microscopic urinalysis

Skills Sheet Module 5

In this module, you will need to download and print the Skills Sheet. This will help you keep track of assignments and assessments that need to be completed in this module. Have your instructor pass off each skill or activity that is required as you work through the module. This is retained in your student file upon completion. You will be doing this for each module.

[Skills Sheet Module 5](#)

The video and reading the chapters in your textbook will provide information that will prepare you to begin your career as a Clinical Lab Assistant by introducing you to the world of healthcare and your place within it.

The learning activities will help you remember the details of the chapter and then you will be able to use the powerpoint to review the highlights. After that you can check your understanding with the Knowledge Check.

Instructional Activities Chapter 45

1. Read Chapter 45 in the *Kinn's The Clinical Medical Assistant* text.
2. View the [Specimen Collection and Processing Procedures \(Links to an external site.\)Links to an external site.](#) video.
3. View the Elsevier Medical Assisting Procedure Video Skills clips in [Evolve \(Links to an external site.\)Links to an external site.](#) to prepare for skills practices
 - Assisting in the Analysis of Urine:
 - Perform a Pregnancy Test

*Additional recommended [Resource for Urinalysis \(Links to an external site.\)Links to an external site.](#):

1. Macroscopic (Physical)
2. Chemical

Practice Chapter 45

Now that you have read the chapter, complete the exercises indicated below in the Study Guide. (Note: Any exercises that ask you to join an outside organization, contact or go to outside facilities can be disregarded). These exercises will help you use the information you learned so that it will be better understood and retained in memory. Use the answer key to self-check your work and correct mistakes you may have made. Have your instructor sign off completion of these exercises on your Skills Sheet.

Complete the following activities to practice what you have just learned. The learning activities will help you remember the details of the chapter.

Complete the Study Guide workbook exercises for Chapter 45.

1. Vocabulary Review
2. Skills and Concepts
3. Case Study #1 (#2 will be submitted electronically later in the module).
4. Workplace Application
5. Medical Record Activities
6. Check your understanding by using the [self-check answer key](#).
7. Have your instructor sign off the completed assignments on your Skills Sheet.

Use the following StudyStack interactive activities for review: Flashcards, Matching, Study Stack, Study Table, Target, Type-in, Hangman, Crossword, Hungry Bug, Bug Match, Unscramble, Chopped, Quiz, and Test. The 'Target' activity has an interactive image to review letter layout.

- [Urinalysis Process - Testing and Results \(Links to an external site.\)Links to an external site.](#)
- [Urinalysis Results Impacted by Improper Urine Storage \(Links to an external site.\)Links to an external site.](#)

Procedure 45-1: Instruct Patient 24-Hour Urine

As a laboratory professional you may need to give specific instructions to patient in regard to the collection of a urine sample. It is important that this patient education be complete and thorough and that you certain that the patient understands. Correct collection as you now know, is a critical factor in obtaining accurate results.

1. Review [Accessibility score: Low Click to improve Procedure 45-1 Instruct for 24 Hour Urine Specimen](#).
2. Memorize these steps. You may also use this [Accessibility score: Perfect Click to improve handout](#) to help study.

It is recommended that you practice and review on your own to become proficient at the necessary steps. It may help to verbalize them to a classmate, instructor, or family member to familiarize yourself with the patient education process.

The urinalysis assessments may be passed off as a group or individually in the Summative Assessment Group 2.

Each step will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 45-2: Instruct Patient Clean Catch Urine

As a laboratory professional you may need to give specific instructions to patient in regard to the collection of a urine sample. It is important that this patient education be complete and thorough and that you certain that the patient understands. Correct collection as you now know, is a critical factor in obtaining accurate results.

1. Review [Accessibility score: Low Click to improve Procedure 45.2 Instruct Clean Catch Midstream Urine Specimen](#).
2. Memorize these steps. You may also use this [Accessibility score: Perfect Click to improve handout](#) to help study.

It is recommended that you practice and review on your own to become proficient at the necessary steps. It may help to verbalize them to a classmate, instructor, or family member to familiarize yourself with the patient education process.

The urinalysis assessments may be passed off as a group or individually in the Summative Assessment Group 2.

Each step will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 45-3: Urine Color and Turbidity (Physical UA)

The first part of the urinalysis is the physical assessment of color, turbidity, or other qualities that may be apparent.

Urinalysis can be performed manually or with an automated urine analyzer. You will have the opportunity to perform both of these types in the classroom laboratory with each step of your urinalysis performance practices. You may perform all three steps of urinalysis with each practice - starting with the physical analysis, then chemical analysis, and finally preparing the urine sample for the microscopic analysis by more advanced laboratory professionals within your laboratory.

1. Review [Accessibility score: Low Click to improve Procedure 45.3 Assess Urine Color & Turbidity \(physical UA\)](#).
2. Watch the Automated Urine Analyzer for usage instructions. [Automated Urine Analyzer \(Links to an external site.\)Links to an external site.](#)
3. Ask your instructor for the location of the urine sample collection containers. Collect a random urine sample.
- 4 Ask your instructor for assistance with the first performance of both manual and automated urinalysis.
5. Complete additional practice urinalysis performances. It is recommended that you perform a minimum of five (5) practices to become proficient with this skill.
6. Document each practice on the [Accessibility score: Low Click to improve Lab Data Flow Sheet](#)
7. Submit the final documentation in the LMS.

The urinalysis assessments may be passed off as a group or individually in the Summative Assessment Group 2.

Each step will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 45-5: Urine Reagent Strip (Chemical UA)

The second part of the urinalysis is the chemical assessment to determine the chemical properties of the urine sample through the use of the reagent strip.

Urinalysis can be performed manually or with an automated urine analyzer. You will have the opportunity to perform both of these types in the classroom laboratory with each step of your urinalysis performance practices. You may perform all three steps of urinalysis with each practice - starting with the physical analysis, then chemical analysis, and finally preparing the urine sample for the microscopic analysis by more advanced laboratory professionals within your laboratory.

Remember that if your are reading the reagent strip manually it is of great importance to watch time and read each section accordingly. Reading too soon does not allow the potential color change to occur, and too late may lead to an inaccurate reading since the color may be overdeveloped.

1. Review [Accessibility score: Low Click to improve Procedure 45.5 Urine Reagent Test \(chemical UA\)](#).
 2. Watch the [Reagent Stick Urine Testing \(Links to an external site.\)Links to an external site.](#)
 3. Review use of the Automated Urine Analyzer if needed.
- [Consult Diagnostics Urine Analyzer \(Links to an external site.\)Links to an external site.](#)

4. Collect a random urine sample.
5. Ask your instructor for assistance with the first performance of both manual and automated urinalysis.
6. Complete additional practice urinalysis performances. It is recommended that you perform a minimum of five (5) practices to become proficient with this skill.
7. Document each practice on the [Accessibility score: Low Click to improve Lab Data Flow Sheet](#) and/or the [Accessibility score: Low Click to improve Work Product 45.1.2 Urinalysis Reagent Strip Patient Log](#).
8. Submit the final documentation in the LMS.

The urinalysis assessments may be passed off as a group or individually in the Summative Assessment Group 2.

Each step will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 45-6: Urine Prep Microscopic Exam

The final part of the urinalysis is the microscopic assessment to determine the microscopic components that can be seen and counted.

As a Clinical Lab Assistant your job is to prepare the urine sample for the microscopic analysis by more advanced laboratory professionals within your laboratory.

1. Review [Accessibility score: Low Click to improve Procedure 45.6 Prepare Microscopic Urine Exam.pdf](#)
2. Watch the [Microscopic Urine \(Links to an external site.\)Links to an external site.](#) Demo video for review.
3. Collect a random urine sample.
4. Ask your instructor for assistance with the first performance of both manual and automated urinalysis.
5. Complete additional practice urinalysis performances. It is recommended that you perform a minimum of five (5) practices to become proficient with this skill.
6. Document each practice on the [Accessibility score: Low Click to improve Lab Data Flow Sheet](#)
7. Submit the final documentation in the LMS.

The urinalysis assessments may be passed off as a group or individually in the Summative Assessment Group 2.

Each step will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Procedure 45-8: Urine Pregnancy Test (HCG)

Urine pregnancy testing may be performed in the clinical laboratory. It is typically performed after the patient has missed an expected menstrual period by at least one week. It is also recommended that that patient bring in a first morning urine sample so that the hormone, Human Chorionic Gonadotropin (HCG), is at it's highest level.

1. Review [Accessibility score: Low Click to improve Procedure 45.8 Urine Pregnancy Test](#).
2. Watch the [Pregnancy Test animation \(Links to an external site.\)Links to an external site.](#) to learn how the test works. (optional activity by Sumanas, Inc.)
3. Watch the [HCG Test \(Links to an external site.\)Links to an external site.](#) Demo video for review.
4. Collect a random urine sample.

5. Ask your instructor for an HCG urine test strip. Read and follow the instructions.
6. Complete one or two tests to be sure you are proficient with this skill.
7. Document each practice on the [Accessibility score: Low Click to improve Lab Data Flow Sheet](#).
8. Submit the final documentation in the LMS.

The urinalysis assessments may be passed off as a group or individually in the Summative Assessment Group 2.

Each step will be assessed in the summative performance assessment module based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Patient Screening - Urinalysis

Complete the following [Accessibility score: Low Click to improve Screening Test Results](#) assignment based on the results noted. This will assess your ability to evaluate the results of a urinalysis and determine the potential problem and how to triage the patient in response to this scenario.

Remember to download the document to your flashdrive first and save it with your name. Work from this saved document, resave when complete, and upload into the LMS for grading.

Urinalysis Spelling List

As a healthcare professional it is important that you develop the ability to correctly spell the sometimes complicated words used in the medical field. Any information that may be put directly into patient's medical records or information sent to colleagues or other facilities must be accurate for reasons of patient care and for legal reasons.

Open the [Urinalysis Spelling List](#). You will see twenty words (usually part of your vocabulary list in the front of the chapter of your textbook). The first word is the correct spelling of the word and the form that you will be tested on. The second word is a phonetic version of that word. Practice the correct spelling of each word.

When you are ready you must come to the classroom testing area to take the spelling test. Within the test will be a visual display of the phonetic spelling of each of the words on the spelling list, a link that you can click on to hear each word pronounced, and a box in which you will type in the correct spelling of each word.

Urinalysis Spelling Test- Requires Respondus LockDown Browser

Instructions

You must come to the classroom testing center to take this Quiz. You will log into the testing computer in Lockdown Browser. An instructor will need to input a code to give you access to the quiz. You will see the phonetic spelling of the words from the Spelling list, have the opportunity to listen to the pronunciation of the word, and then you must type the correctly spelled word into the box. You must get 80% to pass this quiz. You have a total of three attempts. Have your instructor sign off the test score on your Skills Sheet.

Testing Procedures:

1. Click **Take this Quiz** link.
2. Click the play button to listen to the word, then type that word correctly.
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Summary Chapter 45

View [Chapter 45 slides](#) to review the module information and determine if you need to review any concepts in more detail. This will provide a broad overview of the highlights of the chapter content.

Knowledge Check Chapter 45

Chapter 45 quiz on Evolve may be used first as a Knowledge Check. This is an optional assignment. You do not need to submit anything for this assignment.

In [Evolve \(Links to an external site.\)](#)Links to an external site., within Student Resources, go to the correct chapter and click on the link. Click on the Chapter review quiz to complete.

Kinn's Chapter 45 Practice Quiz

Instructions

This quiz can be taken inside or outside the classroom. It does not require a password. It will not count towards your grade. It is highly recommended that you take it and pass at a minimum of 80% to determine if any content areas need to be reviewed before going to the next module.

Testing Procedures:

1. Click **Take this Quiz** link.
2. Read each question and choose the best answer(s).
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

Clinical Laboratory Procedures 1 Summative Objective Assessment 2 - Requires Respondus Lockdown Browser- Requires Respondus LockDown Browser

Instructions

You must come to the classroom to complete this test. An instructor will need to provide a code for you to have access to this test. You must obtain a minimum of 80% to pass.

Choose the correct answer to each question.

Turn in your Skills Sheet to the instructor so that they may sign off on your activities. If all items in the module are complete your instructor will keep the completed Skills Sheet.

Clinical Lab Basics Performance Assessment

Schedule a time with your instructor to complete the summative assessments for the Clinical Laboratory Basics skills.

You must complete each skill.

- Blood Smear

- [Accessibility score: Low Click to improve Procedure 44.2 Microscope Use and Maintenance](#)

Each skill will be assessed based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Hematology/Serology Performance Assessment

Schedule a time with your instructor to complete the summative assessments for each of the Hematology / Serology skills.

You may complete these together or separate them as needed for access to live subjects to perform the venipunctures or capillary punctures.

- [Accessibility score: Low Click to improve Procedure 46.4 Capillary Puncture Blood Sample](#)
- [Accessibility score: Low Click to improve Procedure 44.1 Glucometer Quality Control Calibration Check](#)
- [Accessibility score: Low Click to improve Work Product 44-1 Glucose Control Log](#)
- [Accessibility score: Low Click to improve Procedure 47.2 Perform Microhematocrit](#)
- [Accessibility score: Low Click to improve Procedure 47.3 Perform Hemoglobin Test](#)
- [Accessibility score: Low Click to improve Procedure 47.4 Westergren Erythrocyte Sedimentation Rate \(ESR\)](#)

You must complete each skill and submit documentation for each (this can be on the same documentation form. If you submit separately you must re-submit any previous items so they will not be overwritten in the LMS.)

Each skill will be assessed based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Microbiology/Immunology Performance Assessment

Schedule a time with your instructor to complete the summative assessments for each of the Microbiology / Immunology skills.

You may complete these together or separate them as needed, or preferred.

- [Accessibility score: Low Click to improve Procedure 48.1 Fecal Specimen Collection for O & P](#)
- [Accessibility score: Low Click to improve Procedure 48.2 Rapid Strep](#)
- [Accessibility score: Low Click to improve Procedure 48.3 CLIA Waived Mononucleosis Testing](#)

You must complete each skill and submit documentation for each (this can be on the same documentation form. If you submit separately you must re-submit any previous items so they will not be overwritten in the LMS.)

Each skill will be assessed based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).

Urinalysis Performance Assessment

Schedule a time with your instructor to complete the summative assessments for each of the Urinalysis skills.

You may complete these together or separate them as needed or preferred.

- [Accessibility score: Low Click to improve Procedure 45-1 Instruct for 24 Hour Urine Specimen](#)
- [Accessibility score: Low Click to improve Procedure 45.2 Instruct Clean Catch Midstream Urine Specimen](#)

- [Accessibility score: Low Click to improve Procedure 45.3 Assess Urine Color & Turbidity \(physical UA\)](#)
- [Accessibility score: Low Click to improve Procedure 45.5 Urine Reagent Test \(chemical UA\)](#)
[Accessibility score: Low Click to improve Work Product 45.1,2 Urinalysis Reagent Strip Patient Log](#)
- [Accessibility score: Low Click to improve Procedure 45.6 Prepare Microscopic Urine Exam](#)
- [Accessibility score: Low Click to improve Procedure 45.8 Urine Pregnancy Test](#)

You must complete each skill and submit documentation for each that provide results (this can be on the same documentation form. If you submit separately you must re-submit any previous items so they will not be overwritten in the LMS.)

Each skill will be assessed based on the procedure checklist. At that time you will have a total of three (3) attempts to pass with an 85% overall score while not missing any of the critical items (those marked with an *asterisk).