

Introduction to Phlebotomy Curriculum



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Table of Contents

About the Author.....	4
Curriculum Structure.....	5
Lesson Structure.....	6
Lesson One - Introduction to Phlebotomy	7
FOCUS: Part 1 - Developing Awareness of Patient-Focused Care	9
FOCUS: Part 2 - Anatomy (Locate Veins Used in Phlebotomy).....	12
LEARN: Introduction to Phlebotomy Slide Presentation	16
REVIEW: Practice and Assessment of Phlebotomy	18
Sources	24

About the Author



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Introduction to Phlebotomy

This curriculum and accompanying phlebotomy training tool will help students learn about blood specimen collection through phlebotomy.

Curriculum Structure

The *Introduction to Phlebotomy* curriculum is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	FOCUS: Part 1 - Developing Awareness of Patient-Focused Care	10 minutes
One	FOCUS: Part 2 - Anatomy (Locate Veins Used in Phlebotomy)	10 minutes
One	LEARN: Introduction to Phlebotomy Slide Presentation	20 minutes
One	REVIEW: Practice and Assessment of Phlebotomy	30 minutes
	Total	1 - 1½ hours

Lesson Structure

Each lesson begins with a Lesson Overview, Lesson Objectives and a Lesson at a Glance table which lists the lesson activities, materials required, suggested preparation steps and approximate class time.

Lesson Sections

The actual lesson follows the overview, which will contain some of the sections described below.

FOCUS

Every lesson begins with a FOCUS activity intended to capture participants' attention. This may be in the form of a small or large class discussion, a game, a review of previous lesson information, or a demonstration. During this activity, participants are introduced to the topic of the lesson.

LEARN

The LEARN activity in each lesson varies in its presentation mode. It may be a slide presentation, group activity, or demonstration.

REVIEW

The majority of lessons end with a REVIEW activity intended to briefly review the lesson's key messages or main points.

Lesson One - Introduction to Phlebotomy

Lesson Overview

In this lesson students will learn about blood specimen collection through phlebotomy.

Lesson Objectives

After completing this lesson, participants will be able to:

- Locate veins used for phlebotomy
- Demonstrate how to prepare a patient for phlebotomy
- Perform the steps in conducting phlebotomy

Pre-Lesson Knowledge

- Vascular anatomy
- Aseptic technique

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS: Part 1	• <i>Introduction to Phlebotomy (Focus on Empathy)</i> worksheet • <i>Introduction to Phlebotomy (Focus on Empathy)</i> Instructor Resource	1. Print/photocopy <i>Introduction to Phlebotomy (Focus on Empathy)</i> worksheet (one per participant)	10 minutes
FOCUS: Part 2	• <i>Introduction to Phlebotomy (Focus on Anatomy)</i> worksheet • <i>Introduction to Phlebotomy (Focus on Anatomy)</i> Instructor Resource	1. Print/photocopy <i>Introduction to Phlebotomy (Focus on Anatomy)</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Introduction to Phlebotomy</i> slide presentation • Phlebotomy trainer or simulator	1. Prepare <i>Introduction to Phlebotomy</i> slide presentation for viewing	20 minutes
REVIEW	• <i>Introduction to Phlebotomy Check-Off (Instructor Resource)</i> • <i>Introduction to Phlebotomy Check-Off</i> worksheet • <i>Introduction to Phlebotomy Quiz</i> • <i>Introduction to Phlebotomy Quiz - Answer Key</i> • Phlebotomy trainer or simulator Supplies: • Hand sanitizer or access to soap/water • Laboratory sample tubes upright in a rack	1. Print/photocopy <i>Introduction to Phlebotomy Check-Off</i> worksheet and <i>Introduction to Phlebotomy Quiz</i> (one per participant) 2. Get the supplies ready for the lesson	30 minutes

Introduction to Phlebotomy

	• Clean, non-sterile gloves • Different sizes of blood-sampling devices (safety-engineered devices or needles and syringes) • Tourniquet • Alcohol swabs for skin disinfection • Gauze or cotton ball to be applied over puncture site • Laboratory specimen labels and forms • Laboratory transportation bags/containers • A sharps container		
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Lesson One – Introduction to Phlebotomy

FOCUS: Part 1 - Developing Awareness of Patient-Focused Care

10 minutes

Purpose:

To help students develop awareness of patient-focused care

Materials:

- *Introduction to Phlebotomy (Focus on Empathy)* worksheet
- *Introduction to Phlebotomy (Focus on Empathy)* Instructor Resource

Facilitation Steps:

1. Distribute the *Introduction to Phlebotomy (Focus on Empathy)* worksheets prior to or at the start of the class.
2. Have the *Introduction to Phlebotomy (Focus on Empathy)* Instructor Resource available.
3. Have students read through the information and complete the worksheet.
4. Have students pair up upon completion and share answers.

Introduction to Phlebotomy

(Focus on Empathy) Instructor Resource

READ the following:

Children receive 18 million needle sticks per year. IV placement and venipuncture are some of the most frequently performed interventions by nurses. In a study, children 3-18 years of age were asked to describe getting their blood drawn. They described it as:

- “It’s like when someone stabs you”
- “It hurts and it is horrible”
- “Felt like someone smashing a hammer”

65% said worse than anything else they could imagine despite the presence of parents.

REFLECT on the above.

- If you were going to draw blood from a child, how could you make the process less upsetting?

Calm voice, reassurance, touch, use of a topical numbing agent, distract child, answer questions and explain all actions, allow child to touch and see items

- How could the parents help?

Have parent hold child in an upright position, be calm, focus on the child not the procedure

- How could the parents hinder the process?

Parent anxiety is highly predictive of a child’s anxiety.

Use of restraints or holding the child down

Criticism of child

SHARE your thoughts with a peer.

University of Iowa. (n.d.) Pediatric Venipuncture. Retrieved from http://www.healthcare.uiowa.edu/training/medtest/inservice/ped_stick.pdf

Name: _____ Class: _____

Introduction to Phlebotomy

(Focus on Empathy)

READ the following:

Children receive 18 million needle sticks per year. IV placement and venipuncture are some of the most frequently performed interventions by nurses. In a study, children 3-18 years of age were asked to describe getting their blood drawn. They described it as

- “It’s like when someone stabs you”
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65% said worse than anything else they could imagine despite the presence of parents.

REFLECT on the above.

- If you were going to draw blood from a child, how could you make the process less upsetting?
- How could the parents help?
- How could the parents hinder the process?

SHARE your thoughts with a peer.

Lesson One – Introduction to Phlebotomy

FOCUS: Part 2 - Anatomy (Locate Veins Used in Phlebotomy)

10 minutes

Purpose:

To help students locate veins used in phlebotomy

Materials:

- *Introduction to Phlebotomy (Focus on Anatomy)* worksheet
- *Introduction to Phlebotomy (Focus on Anatomy) Instructor Resource*

Facilitation Steps:

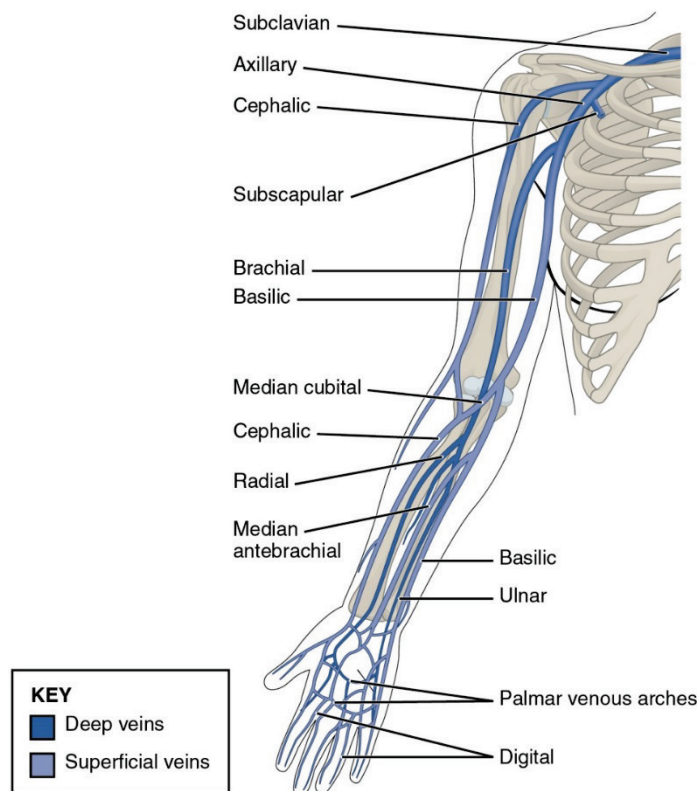
1. Distribute the *Introduction to Phlebotomy (Focus on Anatomy)* worksheets prior to or at the start of the class.
2. Have the *Introduction to Phlebotomy (Focus on Anatomy) Instructor Resource* available.
3. Have students read through the information and complete the worksheet.
4. Have students pair up upon completion and share answers.

Introduction to Phlebotomy

(Focus on Anatomy) Instructor Resource

Phlebotomy is defined as a “the removal of blood from a vein chiefly for transfusion or diagnosis.” Below is a depiction of the veins in the arm.

Exercise: Locate and trace the median cubital, cephalic and basilic veins. These are commonly used to draw blood from.



Why do you think these veins are used for phlebotomy? Which direction does the blood flow? Why are arteries not used?

These veins are superficial and easier to access. Veins have thinner vessel walls than arteries since they return blood to the heart. Vein size goes from small to large and blood flow goes up the arm. Veins are safer to access than arteries because they contain less pressure in the vessels. Less pressure means less bleeding.

OpenStax College [CC BY 3.0 (<http://creativecommons.org/licenses/by/3.0/>)], via Wikimedia Commons. Retrieved from https://commons.wikimedia.org/wiki/File%3A2134_Thoracic_Upper_Limb_Veins.jpg

Merriam-Webster (2016). Dictionary. Retrieved from <https://www.merriam-webster.com/>

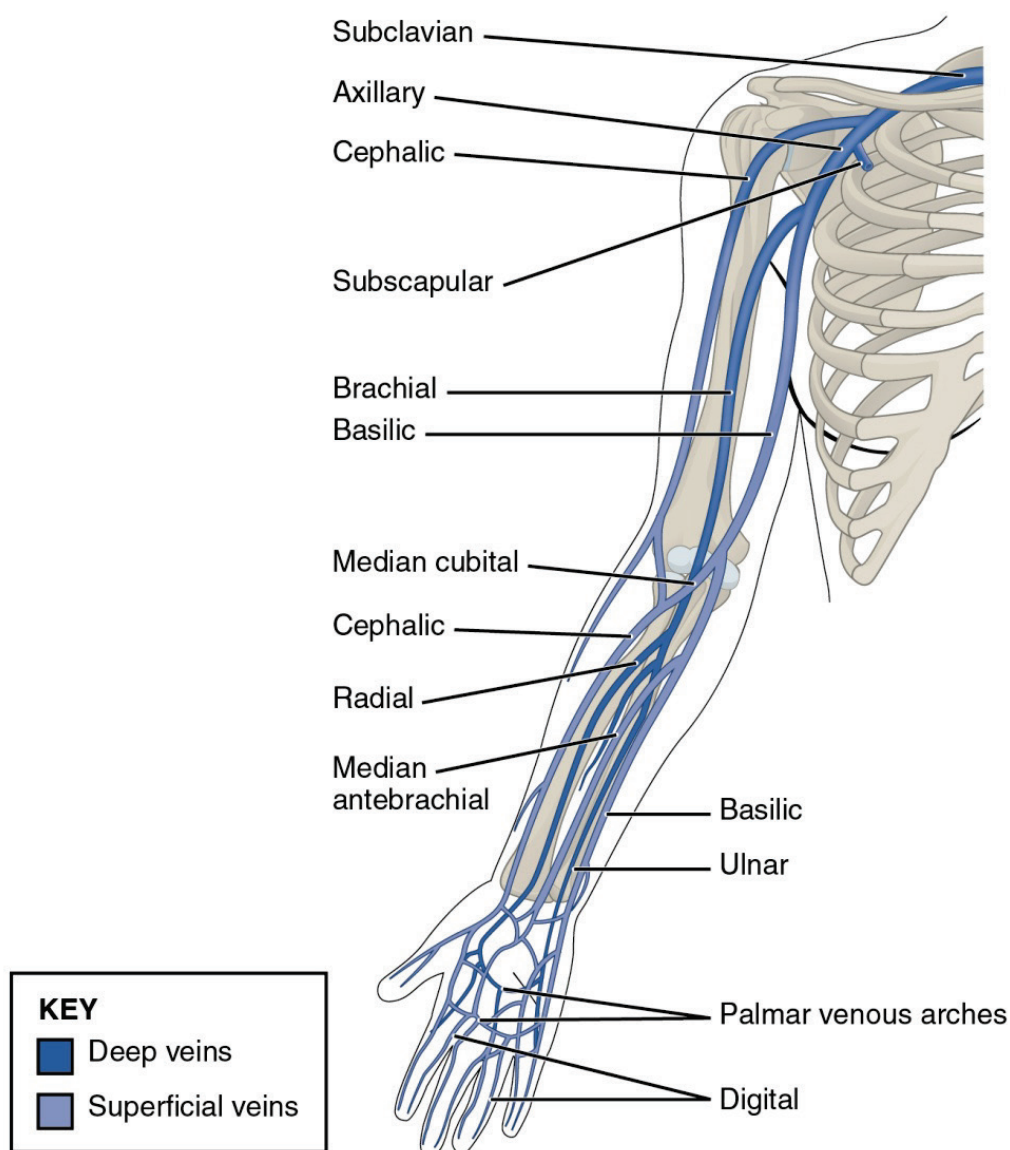
Name: _____ Class: _____

Introduction to Phlebotomy

(Focus on Anatomy)

Phlebotomy is defined as a “the removal of blood from a vein chiefly for transfusion or diagnosis.” Below is a depiction of the veins in the arm.

Exercise: Locate and trace the median cubital, cephalic and basilic veins. These are commonly used to draw blood from.



Introduction to Phlebotomy

Why do you think these veins are used for phlebotomy?

Which direction does the blood flow?

Why are arteries not used?

Lesson One – Introduction to Phlebotomy

LEARN: Introduction to Phlebotomy Slide Presentation

20 minutes

Purpose:

Participants will learn about blood specimen collection through phlebotomy.

Materials:

- *Introduction to Phlebotomy* slide presentation
- Phlebotomy model, trainer or simulator

Facilitation Steps:

1. Share the following information with students as you show the slide presentation.

Slide 1: Introduction Slide (Source: World Health Organization. (2010). *WHO guidelines on drawing blood: best practices in phlebotomy*. Retrieved from http://www.who.int/injection_safety/sign/drawing_blood_best/en/

Slide 2: Phlebotomy is using a needle to access a vein.

Slide 3: According to the World Health Organization, these factors are considered best practices. It is important to be skilled in phlebotomy to avoid injury to the veins.

Ask students:

1. What protective equipment could be used? (gloves)
2. Why is post exposure prophylaxis needed? (hepatitis, HIV, etc)

Slide 4: See *Focus: Part 1* for issues surrounding pediatric blood draws. Cultural considerations are important and may affect a patient's response and willingness to participate. For example, Southeast Asians consider blood to be a vital life force that is irreplaceable. They

may become anxious about a needle penetrating the skin, allowing blood to seep out.

Ask students how they would deal with some of these factors.

Slide 5: Some tests require meeting specific conditions to obtain accurate measurement. (example fasting blood sugar requires patient to fast (NPO), drug peak and trough levels are based on time of medication administration).

Review standard precautions and needle safety with students.

See Table 2.2 Infection Prevention and Control Practices in the WHO Best Practices in Phlebotomy
http://apps.who.int/iris/bitstream/10665/44294/1/9789241599221_eng.pdf

Specimens should be labeled with patient's identification number, date and time the specimen was obtained, name of the test and source of the specimen/culture for each container.

Deliver specimens to the laboratory within the recommended time.

Slide 6: In some facilities, there are specially trained phlebotomists that obtain the blood samples. It is important to know the facility's policies and procedures.

Blood can be collected with a needle and syringe or a needle with a vacutainer.

Explain which method student will be using to collect the blood.

Slide 7: Drawing specimens from contraindicated sites can result in false test results or may injure the patient.

Slide 8: Median cubital area is the most common site. Locate a vein that is visible, straight and clear. Review *Introduction to Phlebotomy (Focus on Anatomy)* worksheet for location of veins.

Healthy veins are elastic and rebounds with palpation. Unhealthy veins are rigid and roll easily.

Tourniquets blocks venous return causing veins to dilate for easier visibility. It is important that it does not block arterial blood flow.

Tourniquets left on for longer than 1 minute may cause complications.

Slide 9: Have needle attached to syringe or Vacutainer depending on the method chosen.

Vacutainers are not recommended in children younger than 2 years of age.

Alcohol drying process kills bacteria and decreases stinging feeling with needle stick. The presence of alcohol may contaminate the sample.

Demonstrate method being used with the trainer, simulator or model.

Slide 10: Remind students not to shake the tubes since this can cause breakdown of the red blood cells.

Students may use a pressure dressing. For patients with bleeding disorders and those taking anticoagulants, pressure should be applied for at least 5 minutes.

Slide 11: Read from the slide.

Lesson One – Introduction to Phlebotomy

REVIEW: Practice and Assessment of Phlebotomy

10 minutes

Purpose:

Participants will practice phlebotomy on models and then complete a quiz to assess mastery.

Materials:

- *Introduction to Phlebotomy Check-Off (Instructor Resource)*
- *Introduction to Phlebotomy Check-Off worksheet*
- *Introduction to Phlebotomy Quiz*
- *Introduction to Phlebotomy Quiz - Answer Key*
- Phlebotomy trainer or simulator

Supplies:

- Hand sanitizer or access to soap/water
- Laboratory sample tubes upright in a rack
- Clean, non-sterile gloves
- Different sizes of blood-sampling devices (safety-engineered devices or needles and syringes)
- Tourniquet
- Alcohol swabs for skin disinfection
- Gauze or cotton ball to be applied over puncture site
- Laboratory specimen labels and forms
- Laboratory transportation bags/containers
- A sharps container

Facilitation Steps:

1. Give students the *Introduction to Phlebotomy Check-Off* worksheet.
2. Access the *Introduction to Phlebotomy Check-Off (Instructor Resource)* page. Following the steps on the check-off page, demonstrate

phlebotomy on the phlebotomy trainer or simulator available.

3. Following the steps on their *Introduction to Phlebotomy Check-Off* worksheet, have students practice phlebotomy on the phlebotomy trainer or simulator available.
4. Hand out the *Introduction to Phlebotomy Quiz*. Give them a couple of minutes to complete it.
5. Have students self-check or peer check their answers as you share them from the *Introduction to Phlebotomy Quiz - Answer Key*.

Introduction to Phlebotomy Check-Off

(Instructor Resource)

PREPARATION:

Supplies:

- Hand sanitizer
- Laboratory sample tubes upright in a rack
- Clean, non-sterile gloves
- Different sizes of blood-sampling devices (safety-engineered devices or needles and syringes)
- Tourniquet
- Alcohol swabs for skin disinfection
- Gauze or cotton ball to be applied over puncture site
- Laboratory specimen labels and forms
- Laboratory transportation bags/containers
- A sharps container

After demonstration, have students practice phlebotomy on the models using the steps on the following page.

Optional: Evaluate the student's ability to complete phlebotomy using the steps on the following page. You may score via points or satisfactory/unsatisfactory.

Introduction to Phlebotomy

1.	Verify written order from provider to determine type of test.	
2.	Gather supplies needed.	
3.	Knock, enter room and provide for privacy.	
4.	Identify yourself with name and title (student nurse, medical assistant, etc.).	
5.	Wash your hands with sanitizer or soap/water.	
6.	Identify patient by asking name and date of birth. Verify this information.	
7.	Explain the procedure to the patient and ask if they have any questions.	
8.	State placing patient in an appropriate position and extending the patient's arm.	
9.	Inspect the antecubital area and locate a vein that is visible, straight and clear.	
10.	Apply tourniquet 4-5 finger widths above potential site.	
11.	Palpate radial pulse to confirm arterial blood flow.	
12.	State asking of patient to open and close fist several times leaving fist clenched.	
13.	Inspect the antecubital area to confirm site.	
14.	Apply clean gloves and palpate selected vein.	
15.	Cleanse site with alcohol swab.	
16.	Anchor the vein by holding the patient's arm and placing a thumb below the venipuncture site.	
17.	Enter the vein at a 30-degree angle or less.	
18.	Draw blood collection tubes in the correct order (if applicable).	
19.	Once sufficient blood has been collected, release the tourniquet before withdrawing the needle.	
20.	Withdraw the needle gently and apply gentle pressure to the site with a clean gauze.	
21.	Discard the used needle and syringe or blood sampling device into sharps container.	
22.	Verify the label on samples and forms for accuracy.	
23.	Remove gloves and perform hand hygiene.	
24.	Check the insertion site for bleeding. Provide for patient comfort and safety.	
25.	Prepare samples for transportation.	
	Score	

Introduction to Phlebotomy Check-Off

Practice venipuncture on the models using the following steps. Depending on the method used (syringe, vacutainer, etc) to draw the blood specimen, you may have to verbalize some steps.

Verify written order from provider to determine type of test.
Gather supplies needed.
Knock, enter room and provide for privacy.
Identify yourself with name and title (student nurse, medical assistant, etc.).
Wash your hands with sanitizer or soap/water.
Identify patient by asking name and date of birth. Verify this information.
Explain the procedure to the patient and ask if they have any questions.
State placing patient in an appropriate position and extending the patient's arm.
Inspect the antecubital area and locate a vein that is visible, straight and clear.
Apply tourniquet 4-5 finger widths above potential site.
Palpate radial pulse to confirm arterial blood flow.
State asking of patient to open and close fist several times leaving fist clenched.
Inspect the antecubital area to confirm site.
Apply clean gloves and palpate selected vein.
Cleanse site with alcohol swab.
Anchor the vein by holding the patient's arm and placing a thumb below the venipuncture site.
Enter the vein at a 30-degree angle or less.
Draw blood collection tubes in the correct order (if applicable).
Once sufficient blood has been collected, release the tourniquet before withdrawing the needle.
Withdraw the needle gently and apply gentle pressure to the site with a clean gauze.
Discard the used needle and syringe or blood sampling device into sharps container.
Verify the label on samples and forms for accuracy.
Remove gloves and perform hand hygiene.
Check the insertion site for bleeding. Provide for patient comfort and safety.
Prepare samples for transportation.

Name: _____ Class: _____

Introduction to Phlebotomy Quiz

Directions: Select the best answer to the following multiple-choice questions:

1. When completing a blood draw, which of the following veins is most commonly used?
 - a. Radial
 - b. Brachial
 - c. Median cubital
 - d. Subclavian
2. When palpated, which of the following is a characteristic of a healthy vein?
 - a. It rolls
 - b. It rebounds
 - c. It is rigid
 - d. It feels cordlike
3. Which of the following should be included on a specimen label?
 - a. Admission date
 - b. Medical diagnosis
 - c. Patient's phone number
 - d. Date/time of collection
4. Why are specimen tubes rotated 8 to 10 times immediately after collection?
 - a. To mix the additives in the tubes
 - b. To warm the specimen
 - c. To sift out any residue
 - d. To create a clearer sample
5. Specimens should be delivered to a laboratory within what time period?
 - a. 5 minutes
 - b. 15 minutes
 - c. 30 minutes
 - d. 60 minutes

Introduction to Phlebotomy Quiz - Answer Key

1. When completing a blood draw, which of the following veins is most commonly used?
 - a. Radial
 - b. Brachial
 - c. Median cubital**
 - d. Subclavian

The median cubital is the most common site. The other options are deep veins.

2. When palpated, which of the following is a characteristic of a healthy vein?
 - a. It rolls
 - b. It rebounds**
 - c. It is rigid
 - d. It feels cordlike

Healthy veins are elastic and rebound with palpation. Unhealthy veins are rigid and roll easily.

3. Which of the following should be included on a specimen label?
 - a. Admission date
 - b. Medical diagnosis
 - c. Patient's phone number
 - d. Date/time of collection**

Specimens should be labeled with patient's identification number, date and time the specimen was obtained, name of the test and source of the specimen/culture for each container.

4. Why are specimen tubes rotated 8 to 10 times immediately after collection?
 - a. To mix the additives in the tubes**
 - b. To warm the specimen
 - c. To sift out any residue
 - d. To create a clearer sample

Rotate tubes 8-10 times to mix with additives. Shaking can disrupt the red blood cells.

5. Specimens should be delivered to a laboratory within what time period?
 - a. 5 minutes
 - b. 15 minutes
 - c. 30 minutes**
 - d. 60 minutes

30 minutes is the recommended amount of time for most specimens.

Sources

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