

Introduction to Subcutaneous Injections Curriculum



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About the Author



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Introduction to Subcutaneous Injections

This curriculum and accompanying injection training tool will help students learn about medication administration through the subcutaneous route.

Curriculum Structure

The *Introduction to Subcutaneous Injections* curriculum is composed of the following parts. Approximate times are included.

Lesson	Title	Approximate Time
One	FOCUS: Part 1 - Developing Awareness of Patient-Focused Care	10 minutes
One	FOCUS: Part 2 - Anatomy (Identifying Layers of Skin)	10 minutes
One	LEARN: Introduction to Subcutaneous Injections Slide Presentation	20 minutes
One	REVIEW: Practice and Assessment of Subcutaneous Injections	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 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 Subcutaneous Injections

Lesson Overview

In this lesson, students will learn about the medication administration through subcutaneous route.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify guidelines for safe medication administration
- Discuss indications for the subcutaneous route
- Identify locations for subcutaneous injections
- Demonstrate subcutaneous injection technique
- Explain how to document a subcutaneous injection

Pre-Lesson Knowledge

- Integumentary anatomy
- Dosage calculation
- Safe medication administration practices

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS: Part 1	• <i>Introduction to Subcutaneous Injections (Focus on Empathy)</i> worksheet • <i>Introduction to Subcutaneous Injections (Focus on Empathy) Instructor Resource</i>	1. Print/photocopy <i>Introduction to Subcutaneous Injections (Focus on Empathy)</i> worksheet (one per participant)	10 minutes
FOCUS: Part 2	• <i>Introduction to Subcutaneous Injections (Focus on Anatomy)</i> worksheet • <i>Introduction to Subcutaneous Injections (Focus on Anatomy) Instructor Resource</i>	1. Print/photocopy <i>Introduction to Subcutaneous Injections (Focus on Anatomy)</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Introduction to Subcutaneous Injections</i> slide presentation • <i>Introduction to Subcutaneous Injections Check-Off (Sample Medication Administration Record)</i> • Injection pad, model or simulator	1. Prepare <i>Introduction to Subcutaneous Injections</i> slide presentation for viewing 2. Print/photocopy <i>Introduction to Subcutaneous Injections Check-Off (Sample Medication Administration Record)</i> (one per participant)	20 minutes
REVIEW	• <i>Introduction to Subcutaneous Injections</i> slide presentation • <i>Introduction to Subcutaneous Injections Check-Off (Instructor Resource)</i> • <i>Introduction to Subcutaneous Injections Check-Off (Sample Medication Administration Record)</i>	1. Prepare <i>Introduction to Subcutaneous Injections</i> slide presentation for viewing 2. Print/photocopy (one per participant): • <i>Introduction to Subcutaneous Injections Check-Off Subcutaneous (Sample Provider's Orders)</i> • <i>Introduction to Subcutaneous Injections Check-Off</i> worksheet	30 minutes

Introduction to Subcutaneous Injections

	• <i>Introduction to Subcutaneous Injections Check-Off (Sample Provider's Orders)</i> • <i>Introduction to Subcutaneous Injections Check-Off</i> worksheet • <i>Introduction to Subcutaneous Injections Check-Off (Medication Administration Record)</i> worksheet • Injection pad, model or simulator • <i>Introduction to Subcutaneous Injections Quiz</i> • <i>Introduction to Subcutaneous Injections Quiz - Answer Key</i> Supplies: • Med cart or mock med cart • Mock/demo vial of regular insulin • Subcutaneous injection models, task trainer or simulator • Subcutaneous syringes/needles • Alcohol swab • Hand sanitizer or access to a sink • Clean gloves • Sharps container	• <i>Introduction to Subcutaneous Injections Check-Off (Medication Administration Record)</i> worksheet • <i>Introduction to Subcutaneous Injections Quiz</i> 3. Get the supplies ready for the lesson 4. Set up injection pad, model, or simulator	
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Instructor Note: For Focus and Review activities, the instructor may choose to have students complete both or one of the two activities. Focus activities may also be completed prior to class.

Lesson One - Introduction to Subcutaneous Injections

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

10 minutes

Purpose:

To help students develop awareness of patient focused care.

Materials:

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

Facilitation Steps:

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

Introduction to Subcutaneous Injections (Focus on Empathy) Instructor Resource

READ the following:

Imagine that you have just been diagnosed with diabetes. The health care provider tells you that you will have to give yourself a subcutaneous insulin injection three times a day based on your blood sugar level for the rest of your life. You cannot skip a dose.

REFLECT on the situation

1. How do you feel about giving yourself injections three times a day?

Emphasize to the students that this is a life long change. Perhaps they know someone who has diabetes and gives themselves injections.

2. How will this impact your social/school/work life?

Discuss how they would integrate this into their lives. What would be challenging?

SHARE your thoughts with a peer

Name: _____ Class: _____

Introduction to Subcutaneous Injections (Focus on Empathy)

READ the following:

Imagine that you have just been diagnosed with diabetes. The health care provider tells you that you will have to give yourself a subcutaneous insulin injection three times a day based on your blood sugar level for the rest of your life. You cannot skip a dose.

REFLECT on the situation

1. How do you feel about giving yourself injections three times a day?
2. How will this impact your social/school/work life?

SHARE your thoughts with a peer.

Lesson One - Introduction to Subcutaneous Injections

FOCUS: Part 2 - Anatomy (Identifying Layers of Skin)

10 minutes

Purpose:

To help students learn to identify layers of the skin.

Materials:

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

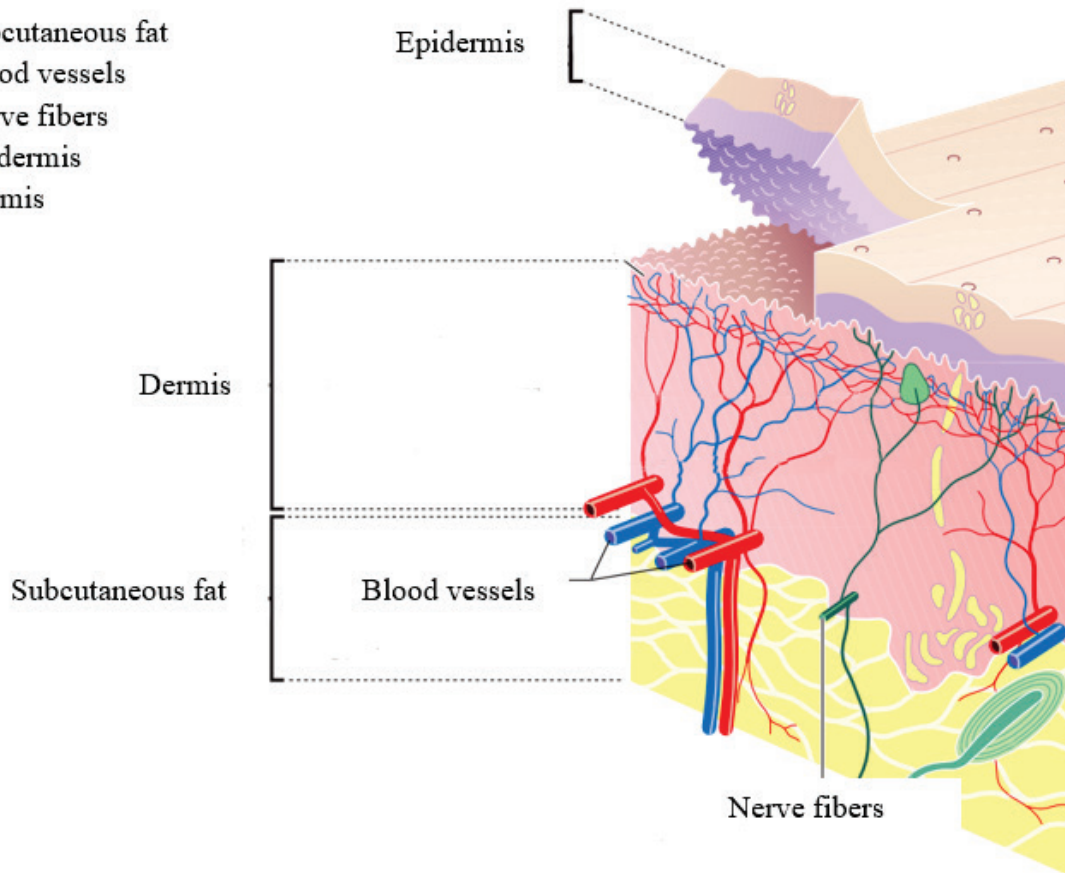
Facilitation Steps:

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

Introduction to Subcutaneous Injections (Focus on Anatomy) Instructor Resource

Subcutaneous is defined as “under the skin” (Merriam-Webster). Below is a diagram of the layers of the skin. Label the diagram with the words listed and answer the questions below.

1. Subcutaneous fat
2. Blood vessels
3. Nerve fibers
4. Epidermis
5. Dermis



1. Can subcutaneous injections bleed? Why?
Yes but minimally. The larger vessels are in the muscle.
2. Do subcutaneous injections hurt? Why?
They can but it depends on the thickness and density of the subcutaneous tissues. People with less subcutaneous fat seem to report more pain.

Modified work.

By Madhero88 (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons(https://commons.wikimedia.org/wiki/File%3ASkin_layers.png)

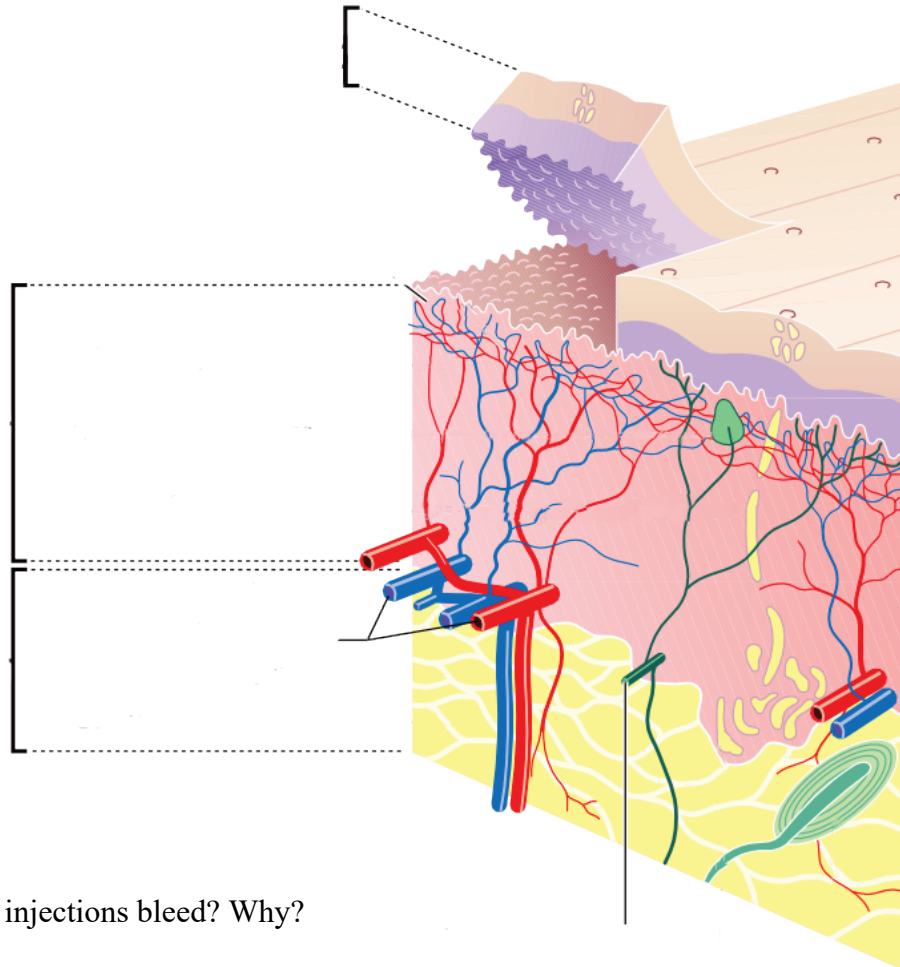
Merriam-Webster (2016). Dictionary. Retrieved from <https://www.merriam-webster.com/>

Name: _____ Class: _____

Introduction to Subcutaneous Injections (Focus on Anatomy)

Subcutaneous is defined as “under the skin” (Merriam-Webster). Below is a diagram of the layers of the skin. Label the diagram with the words listed and answer the questions below.

1. Subcutaneous fat
2. Blood vessels
3. Nerve fibers
4. Epidermis
5. Dermis



1. Can subcutaneous injections bleed? Why?
2. Do subcutaneous injections hurt? Why?

Modified work.

By Madhero88 (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons(https://commons.wikimedia.org/wiki/File%3ASkin_layers.png)

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

Lesson One - Introduction to Subcutaneous Injections

LEARN: Subcutaneous Injections Slide Presentation

20 minutes

Purpose:

Participants will receive a thorough introduction to subcutaneous injections and the proper procedure and documentation surrounding it.

Materials:

- *Introduction to Subcutaneous Injections* slide presentation
- *Introduction to Subcutaneous Injections Check-Off (Sample Medication Administration Record)*
- Injection pad, model or simulator

Facilitation Steps:

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

Slide 1: Introduction Slide (Source: Perry, A., Potter, P., & Ostendorf, W. (2014). *Clinical Nursing Skills and Techniques*. 8th Edition. Publisher: Mosby, Inc.

Slide 2: Parenteral means administered in a manner other than through the digestive tract (in this case, by subcutaneous injection).

See *Introduction to Subcutaneous Injections (Focus on Anatomy)*. Discuss location of subcutaneous tissue.

The patient's body weight and amount of fatty tissue indicate the depth of the subcutaneous layer.

Parenteral medications are absorbed more quickly than oral medications but subcutaneous is absorbed more slowly than intramuscular since there are less blood vessels

Slide 3: Insulin is used to treat diabetes. Diabetes is defined as “disease in which too little or no insulin is produced or insulin is produced but cannot be used normally resulting in high levels of sugar in the blood”.

(<https://www.merriam-webster.com/dictionary/diabetes>). The timing of injections is critical to correct insulin administration. Providers plan insulin injection times based on blood sugar levels and when a patient will eat.

According to the CDC, 29.1 million people (or 9.3% of the population) have diabetes. It is estimated that 8.1 million people (27.8% of people with diabetes) are undiagnosed. (<https://www.cdc.gov/diabetes/data/statistics/2014statisticsreport.html>)

Epinephrine (also known as Adrenalin) can be administered subcutaneously for severe allergic reactions (anaphylaxis). Epinephrine can also be given into the muscle.

Anticoagulants prevent the blood from clotting. It is given to prevent clots in the legs, heart, lungs and brain. A common example is heparin although other products are available.

Slide 4: Since patients give themselves these injections, sites should be easily accessible and large enough to allow rotating multiple injections within each anatomic location.

Rotation of sites prevents fatty scar tissue to accumulate.

Administering an anticoagulant on the belt line may increase bruising and discomfort.

Slide 5: Gauge refers to the diameter of the needle. The higher the gauge the thinner the needle.

Note that insulin is given in units and other medications are in mL. It is important to match the insulin syringe units to the units on the vial of insulin (U-100 vs U-500).

Introduction to Subcutaneous Injections

(Show the students the supplies and where to find the length/gauge of a needle on the package)

Slide 6: Prior to administering any medication, it is important to review the medication administration record and provider's order. It is essential to review general information about the medication as well.

Make sure the medication is appropriate for your patient.

Show MAR provided. Note that there is sliding scale insulin based on blood sugar results.

Slide 7: Demonstrate swabbing of vial, adding air, removing needle cap in one smooth motion to prevent a rebound needle stick and drawing of medication.

One handed scoop method: Place the cap on a flat surface and hold the syringe in one hand. Keep the other hand by your side. Slide the needle into the cap, then lift it up and snap it on securely using only one hand.

Depending on dose, it may necessary to add air equal to the dose into the vial prior to removing the medication. This equalizes the pressure in the vial. Remove air bubbles in injection needle.

Finish completing the rights of administration once dose is drawn. This may be done at a medication cart or at bedside depending on facility. Most facilities require a second person to check insulin dosages.

Slide 8: Review proper identifiers (name, date of birth, medical record number, photograph in MAR).

Ask students how they would explain a subcutaneous injection.

Slide 9: Assist patient to comfortable position exposing only the site needed. Swab the site with alcohol in a circular motion from the site to an inch around site. Allow to dry as this is what sanitizes the site.

Slide 10: Demonstrate subcutaneous injection. If you can pinch an inch or more of skin, a 90-degree angle can be used. Less than an inch, a 45-degree angle is recommended.

Note that some anticoagulants require a 90-degree angle however skin is not to be released during injection. This prevents injection into the muscle. If anticoagulants are given, hold alcohol swab or gauze to site for 30 to 60 seconds.

Slide 11: Patient teaching depends on the medication. For example, with insulin, instruct the patient to notify if experiencing symptoms of hypoglycemia (shakiness, fatigue, sweating, light-headedness).

Slide 12: Every MAR is different. Demonstrate documentation of subcutaneous injection.

Introduction to Subcutaneous Injections Check-Off

(Sample Medication Administration Record)

Patient	Reinhart, Patricia	MRN	4523961
Date of Birth	01/28/XXXX	Provider	Hanson
Age	66 years	Allergies	Vicodin

Medication	Time	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Regular insulin 10 unit subcutaneous every AM	0700	JW						
	Site	Left Arm						
Regular insulin subcutaneous per sliding scale PRN If blood glucose is: 150- 159 then 2 units 160 – 169 then 4 units 170 -179 then 6 units 180-189 then 8 units 190-199 then 10 units Over 200, call provider	0700	JW						
	Blood Glucose	158						
	Site	Left Arm						

Initials	Signature/Title	Initials	Signature/Title
JW	Janice Wells SN		

Lesson One - Introduction to Subcutaneous Injections

REVIEW: Practice and Assessment of Subcutaneous Injections

30 minutes

Purpose:

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

Materials:

- *Introduction to Subcutaneous Injections Check-Off (Instructor Resource)*
- *Introduction to Subcutaneous Injections Check-Off (Sample Medication Administration Record)*
- *Introduction to Subcutaneous Injections Check-Off (Sample Provider's Orders)*
- *Introduction to Subcutaneous Injections worksheet*
- *Introduction to Subcutaneous Injections Check-Off (Medication Administration Record) worksheet*
- Injection pad, model or simulator
- *Introduction to Subcutaneous Injections Quiz*
- *Introduction to Subcutaneous Injections Quiz - Answer Key*

Supplies:

- Med cart or mock med cart
- Mock/demo vial of regular insulin
- Subcutaneous injection models, task trainer or simulator
- Subcutaneous syringes/needles
- Alcohol swab
- Hand sanitizer or access to a sink
- Clean gloves
- Sharps container

Facilitation Steps:

1. Give students the following handouts:
 - *Introduction to Subcutaneous Injections Check-Off (Sample Medication Administration Record)*

- *Introduction to Subcutaneous Injections Check-Off (Sample Provider's Orders)*
 - *Introduction to Subcutaneous Injections worksheet*
 - *Introduction to Subcutaneous Injections Check-Off (Medication Administration Record) worksheet*
2. Access the *Introduction to Subcutaneous Injections Check-Off (Instructor Resource)* page. Following the steps on the check-off page, demonstrate a subcutaneous injection on the model, task trainer or simulator.
 3. Have students review the *Introduction to Subcutaneous Injections Check-Off (Sample Medication Administration Record)* and *Introduction to Subcutaneous Injections Check-Off (Sample Provider's Orders)*. Answer any questions students may have on using these.
 4. Following the steps on their *Introduction to Subcutaneous Injections worksheet*, have students practice subcutaneous injections on the model, task trainer or simulator available.
 5. Students should properly document their injection on the *Introduction to Subcutaneous Injections Check-Off (Medication Administration Record) worksheet*.
 6. Hand out the *Introduction to Subcutaneous Injections Quiz* to students. Give them a couple of minutes to complete it.
 7. Have students self-check or peer check their answers as you share them from *Introduction to Subcutaneous Injections Quiz - Answer Key*

Introduction to Subcutaneous Injections

Check-Off (Instructor Resource)

PREPARATION:

Supplies:

- Provider Order
- MAR
- Med cart or mock med cart
- Mock/demo vial of Regular insulin
- Subcutaneous injection models (can be placed on a manikin)
- Subcutaneous syringes/needles
- Alcohol swab
- Hand sanitizer or access to sink
- Clean gloves
- Sharps container

After demonstration, have students practice subcutaneous injections on the models using the following steps:

Optional: Evaluate the student's ability to complete a subcutaneous injection using the following steps. May score via points or satisfactory/unsatisfactory. See sample completed MAR for proper documentation.

Introduction to Subcutaneous Injections

1.	Verify MAR with written order from provider	
2.	Review medication reference information (proper dosage, side effects, contraindications etc.)	
3.	Gather supplies needed for preparing and administering medication	
4.	Wash your hands with sanitizer or soap/water	
5.	Compare MAR with medication; complete the Rights of Administration	
6.	Draw up the correct dose; verify with a peer, and complete the Rights of Administration	
7.	Wash your hands with sanitizer or soap/water	
8.	Gather supplies. Lock medication cart and ensure no patient information is visible per HIPAA	
9.	Knock, enter room, and provide for privacy	
10.	Identify yourself with name and title (student nurse, medical assistant, etc.)	
11.	Wash your hands with sanitizer or soap/water	
12.	Identify patient by asking name and date of birth. Verify this information with the MAR.	
13.	Explain the procedure to the patient and ask if they have any questions. Verify allergies with MAR.	
14.	If not completed at the cart, complete the Rights of Administration	
15.	Apply clean gloves	
16.	Assist patient to comfortable position and select appropriate site	
17.	Clean site with alcohol swab	
18.	Remove needle cap, pinch up skin, insert needle at a 45-90 degree angle, and release skin	
19.	Administer injection and inject slowly	
20.	Withdraw needle, apply alcohol swab or gauze lightly over site without massaging site	
21.	Dispose of needle in sharps container	
22.	Ask your patient if they are comfortable and if they have any questions.	
23.	Remove gloves and wash your hands with sanitizer or soap/water	
24.	Document medication administration on the MAR.	
	Score	

Introduction to Subcutaneous Injections Check-Off

(Sample Medication Administration Record)

Patient	Reinhart, Patricia	MRN	4523961
Date of Birth	011/28/XXXX	Provider	Hanson
Age	66 years	Allergies	Vicodin

Medication	Time	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Regular insulin 10 unit subcutaneous every AM	0700	JW						
	Site	Left Arm						
Regular insulin subcutaneous per sliding scale PRN If blood glucose is: 150-159 then 2 units 160-169 then 4 units 170-179 then 6 units 180-189 then 8 units 190-199 then 10 units Over 200, call provider	0700	JW						
	Blood Glucose	158						
	Site	Left Arm						

Initials	Signature/Title	Initials	Signature/Title
JW	Janice Wells SN		

Introduction to Subcutaneous Injections Check-Off

(Sample Provider's Orders)

Date	Time	Orders
<i>Today</i>	<i>0700</i>	<i>Admit to medical floor for hyperglycemia</i>
		<i>Regular insulin 10 unit subcutaneous every AM</i>
		<i>Regular insulin subcutaneous per sliding scale PRN</i>
		<i>If blood glucose is:</i>
		<i>150~159 then 2 units</i>
		<i>160~169 then 4 units</i>
		<i>170~179 then 6 units</i>
		<i>180~189 then 8 units</i>
		<i>190~199 then 10 units</i>
		<i>Over 200, call provider</i>
		<i>Dr. Brett Hanson</i>

REINHART, PATRICIA
 MRN: 4523961
 Age: 66 years
 Date of Birth: 11/28/XXXX

Introduction to Subcutaneous Injections

PART ONE: Practice subcutaneous injections on the model using the following steps:

Verify MAR with written order from provider
Review medication reference information (proper dosage, side effects, contraindications etc.)
Gather supplies needed for preparing and administering medication
Wash your hands with sanitizer or soap/water
Compare MAR with medication; complete the Rights of Administration
Draw up the correct dose; verify with a peer, and complete the Rights of Administration
Wash your hands with sanitizer or soap/water
Gather supplies. Lock medication cart and ensure no patient information is visible per HIPAA
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 with the MAR.
Explain the procedure to the patient and ask if they have any questions. Verify allergies with MAR.
If not completed at the cart, complete the Rights of Administration
Apply clean gloves
Assist patient to comfortable position and select appropriate site
Clean site with alcohol swab
Remove needle cap, pinch up skin, insert needle at a 45-90 degree angle, and release skin
Administer injection and inject slowly
Withdraw needle, apply alcohol swab or gauze lightly over site without massaging site
Dispose of needle in sharps container
Ask your patient if they are comfortable and if they have any questions.
Remove gloves and wash your hands with sanitizer or soap/water
Document medication administration on the MAR.

Introduction to Subcutaneous Injections Check-Off

(Medication Administration Record)

Patient	Reinhart, Patricia	MRN	4523961
Date of Birth	011/28/XXXX	Provider	Hanson
Age	66 years	Allergies	Vicodin

Medication	Time	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Regular insulin 10 unit subcutaneous every AM	0700							
	Site							
Regular insulin subcutaneous per sliding scale PRN If blood glucose is: 150-159 then 2 units 160-169 then 4 units 170-179 then 6 units 180-189 then 8 units 190-199 then 10 units Over 200, call provider	0700 Blood Glucose Site							

Initials	Signature/Title	Initials	Signature/Title

Name: _____ Class: _____

Introduction to Subcutaneous Injections Quiz

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

1. Subcutaneous injections are used for which of the following?
 - a. Pain medications
 - b. Local anesthetics
 - c. Insulin
 - d. Sensitivity tests
2. Which of the following is the proper site for a subcutaneous injection?
 - a. Anterior forearm
 - b. Abdomen
 - c. Chest
 - d. Lower legs
3. You need to give insulin subcutaneously to a patient. Which of the following needles would you correctly select?
 - a. 1 to 3 inch, 22- to 18-gauge needle
 - b. 5/8 to 1½ inch, 24- to 18-gauge needle
 - c. 1/2 to 5/8 inch, 25- to 27-gauge needle
 - d. 3/8 to 5/8 inch, 27- to 30-gauge needle
4. When administering a subcutaneous injection, what angle should be used?
 - a. 5 or 15 degree
 - b. 15 or 45 degree
 - c. 45 or 90 degree
 - d. 90 degree only
5. After you give insulin subcutaneously to a patient, what should be included in the follow-up?
 - a. Recheck patient's pain level
 - b. The site needs to be read in 48-72 hours
 - c. Place pressure on the site for 2 minutes
 - d. Monitor patient for signs of low blood glucose

Introduction to Subcutaneous Injections Quiz - Answer Key

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

1. Subcutaneous injections are used for which of the following?

- a. Pain medications
- b. Local anesthetics
- c. Insulin**
- d. Sensitivity tests

Subcutaneous injections can include insulin, some anticoagulants and some vaccines. Pain medications are given IM. Local anesthetics and sensitivity tests are given intradermal

2. Which of the following is the proper site for a subcutaneous injection?

- a. Anterior forearm
- b. Abdomen**
- c. Chest
- d. Lower legs

Subcutaneous injections can be given in the abdomen, back of upper arms and anterior thighs. Intradermal are given in the anterior forearm. Chest and lower legs are not injection sites.

3. You need to give insulin subcutaneously to a patient. Which of the following needles would you correctly select?

- a. 1 to 3 inch, 22- to 18-gauge needle
- b. 5/8 to 1½ inch, 24- to 18-gauge needle
- c. 5/8 to 1/2 inch, 25- to 27-gauge needle**
- d. 3/8 to 5/8 inch, 27- to 30-gauge needle

Choices a and b are too large of needles and Choice d is too small of a needle for insulin.

4. When administering a subcutaneous injection, what angle should be used?

- a. 5 or 15 degree
- b. 15 or 45 degree
- c. 45 or 90 degree**
- d. 90 degree only

Depending on the amount of subcutaneous tissue present or medication given, the angle can vary between 45 and 90.

5. After you give insulin subcutaneously to a patient, what should be included in the follow-up?

- a. Recheck patient's pain level
- b. The site needs to be read in 48-72 hours
- c. Place pressure on the site for 2 minutes
- d. Monitor patient for signs of low blood glucose**

Insulin causes a drop in blood glucose so therefore patients should be monitored for hypoglycemia.

Sources

Centers for Disease Control (2015). 2014 National Diabetes Statistics Report. Retrieved from <https://www.cdc.gov/diabetes/data/statistics/2014statisticsreport.html>

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

Perry, A., Potter, P., & Ostendorf, W. (2014). *Clinical Nursing Skills and Techniques*. 8th Edition. Publisher: Mosby, Inc.