

Insulin and GLP-1 Injection In-Service:

Diabetes Mellitus is a disease where a lack of insulin or insulin resistance causes glucose to build up in the bloodstream. In the short term, this causes cells in the body to be starved of glucose. In the long-term, this causes end-organ damage to the eyes, kidneys, nerves, and heart.

Type 1 Diabetes – Results from the body’s failure to produce insulin. It is estimated that 5 – 10% of Americans diagnosis with diabetes have this type.

Type 2 Diabetes – Results from insulin resistance (a condition in which the body fails to properly use insulin) combined with a relative insulin deficiency. About 90 – 95% of Americans have this type. Type 2 diabetes is more common in African-Americans, Latinos, Native Americans, and Asian Americans/Pacific Islanders, as well as the aged population.

Glucagon - peptide hormone produced by alpha cells of the pancreas. It works to raise the concentration of glucose and fatty acids in the bloodstream.

Insulin – hormone produced by the beta cells of the pancreas. It stimulates peripheral glucose uptake, inhibits hepatic glucose production, inhibits lipolysis and proteolysis, and regulates glucose metabolism.

Recommended Monitoring (CMS guidelines require adequate monitoring of medication (CMS F-Tag 755) to ensure the medication is necessary):

The **A1C** test measures the percent of glucose attached to red blood cells. The A1C is a picture of the average blood glucose (blood sugar) control for the past 2 to 3 months. The A1C is recommended to be checked every 3 to 6 months. Please note this is an average and thus extreme highs or lows may be hidden!

- Normal A1C less than 5.7%
- Prediabetes AIC 5.7% to 6.4%
- Diabetes 6.5% greater

The American Diabetes Association (ADA) suggests the following targets for most nonpregnant adults with diabetes. (Glycemic goals may be adjusted to what is appropriate for each individual):

- A1C: Less than 7% (A1C may also be reported as eAG: Less than 154 mg/dl)
- Before a meal (pre-prandial plasma glucose): 80–130 mg/dl
- 1-2 hours after beginning of the meal (Postprandial plasma glucose): Less than 180 mg/dl

ADA is recommending the use of a new term in diabetes management, estimated average glucose (eAG), which allows health care providers to report A1C results to patients using the same units (mg/dl or mmol/l) that patients see routinely in blood glucose measurements.

A1C	eAG in mg/dl	eAG in mmol/L
6	126	7
6.5	140	7.8
7	154	8.6
7.5	169	9.4
8	183	10.1
8.5	197	10.9
9	212	11.8

9.5	226	12.6
10	240	13.4

In addition to routine monitoring of the A1C level, **blood glucose monitoring** (FSBS or accuchecks) should be done at least weekly in the long-term care setting. More frequent monitoring is often required based on the resident's condition. Taking a blood glucose at different times of the day, rather than at the same time every day, may give a more accurate picture of the patient's glycemic control.

Insulin Pens:

FlexTouch (Fiasp U-100, Novolog U-100, Levemir U-100, Tresiba U-100, Tresiba U-200)

KwikPen (Basaglar U-100, Humulin R U-500, Humalog U-100, Humalog U-500, Humulin N U-100)

SoloStar (Admelog U-100, Apidra U-100, Lantus U-100, Toujeo U-300)

Insulin Storage:

1. Never use insulin that has been frozen.
2. Store unopened insulin in the refrigerator at 36-46F
3. Store opened, in-use insulin at room temperature. Do not store opened pens in the refrigerator.
4. Inspect insulin before administration to check for particulate. Insulin that is supposed to be clear should never appear cloudy.
5. Do not expose to direct heat or light.
6. For any questions, refer to package insert.

Medication	Unopened	Open
Vials	Refrigerated (36°F to 46°F)	Room Temperature (59°F to 86°F)
		Refrigerated or Room Temperature (36°F to 46°F)
Apidra®	Expiration date on vial	28 days
Humalog®	Expiration date on vial	28 days
Humalog® Mix (75/25 or 50/50)	Expiration date on vial	28 days
Humulin® R, Humulin® N, Humulin® 70/30	Expiration date on vial	31 days
Lantus®	Expiration date on vial	28 days
Levemir®	Expiration date on vial	42 days
Novolin® R, Novolin® N, Novolin® 70/30	Expiration date on vial	42 days (up to 77°F)
Novolog®	Expiration date on vial	28 days
Novolog® Mix 70/30	Expiration date on vial	28 days

Medication	Unopened		Open
	Refrigerated (36°F to 46°F)	Room Temperature (59°F to 86°F)	Room Temperature (59°F to 86°F) DO NOT REFRIGERATE PENS AFTER OPENING
Pens, Cartridges, and Prefilled Syringes			
Admelog® Solostar®	Expiration date on pen	28 days	28 days
Apidra® SoloStar®	Expiration date on pen	28 days	28 days
Basaglar® Kwikpen®	Expiration date on pen	28 days	28 days
Fiasp® Flextouch®	Expiration date on pen	28 days	28 days
Humalog® KwikPen®	Expiration date on pen	28 days	28 days
Humalog® Mix 50/50 KwikPen®	Expiration date on pen	10 days	10 days
Humalog® Mix 75/25 KwikPen®	Expiration date on pen	10 days	10 days
Humulin® N KwikPen®	Expiration date on pen	14 days	14 days
Humulin® 70/30 Pen	Expiration date on pen	10 days	10 days
Lantus® SoloSTAR®	Expiration date on pen	28 days	28 days
Levemir® Flextouch®	Expiration date on pen	42 days	42 days
Novolog® FlexPen®	Expiration date on pen	28 days	28 days
Novolog® Mix 70/30 FlexPen®	Expiration date on pen	14 days	14 days
Toujeo® SoloSTAR®	Expiration date on pen	42 days	42 days
Tresiba® FlexTouch®	Expiration date on pen	56 days	56 days

Glucometer:

Glucometers must be cleaned between each use! Cleaning must be done with an antimicrobial wipe (typically containing bleach) and not just an alcohol pad. Failure to properly clean the glucometer may result in a deficiency under CMS F-Tag 441. The LTC facility must have a program for infection control and identify a key person responsible for oversight of the program. Alcohol wipes are not sufficient to clean the glucometer. Some examples of acceptable wipes are listed below:

- Clorox - Dispatch® Hospital Cleaner Disinfectant Towels with Bleach Clorox Healthcare™ Bleach Germicidal Wipes Clorox Healthcare™ Hydrogen Peroxide Cleaner Clinical Surface Wipes EZ-Kill® Disinfectant/Deodorizing/Cleaning Wipes Medline - Micro-Kill Individual 3"x 3"
- Cambridge Sensors USA Microdot® Bleach Wipe
- Metrex CaviWipes™
- Professional Disposables International, Inc. (PDI) Super Sani-Cloth® Germicidal Disposable Wipes Sani-Cloth® Bleach Germicidal Disposable Wipe Sani-Cloth® AF Germicidal Disposable Wipes
- Virox Technologies Accel TB Hydrogen Peroxide Cleaner/Disinfectant

Glucometers must be calibrated regularly to ensure an accurate reading. The glucometer should come with instructions on how to calibrate the machine. Typically, there is a high and low solution with the machine. Please be sure to use the solutions intended for the machine you are using. In the long-term care and institutional setting, the best practice is to

calibrate the machine once a day. This should be the responsibility of one shift, typically the 11-7 or overnight shift. The results should be documented and kept in a notebook that is readily available.

Insulin Administration:

Timing:

- Proper timing of insulin administration can be very important to ensure adequate diabetes control. Failure to administer insulin can result in a significant med error for the facility!
- Blood glucose checks and insulin administration should always be done in the resident's room using proper privacy techniques. This should never be done in the dining room or other public areas!
- Rapid-acting insulin should be given within 15 minutes of a meal or immediately after the resident eats! Giving rapid acting insulin too early can result in hypoglycemia.
- Short-acting and intermediate-acting insulin should be given within 30 minutes of a meal.
- Lantus and Tresiba are long-acting insulins that do not have a true peak and can be given at any time of the day. They should be given at the same time every day, typically at bedtime but they may be given in the morning.
- Levemir (a long-acting insulin) is recommended to be given with the evening meal or at bedtime.

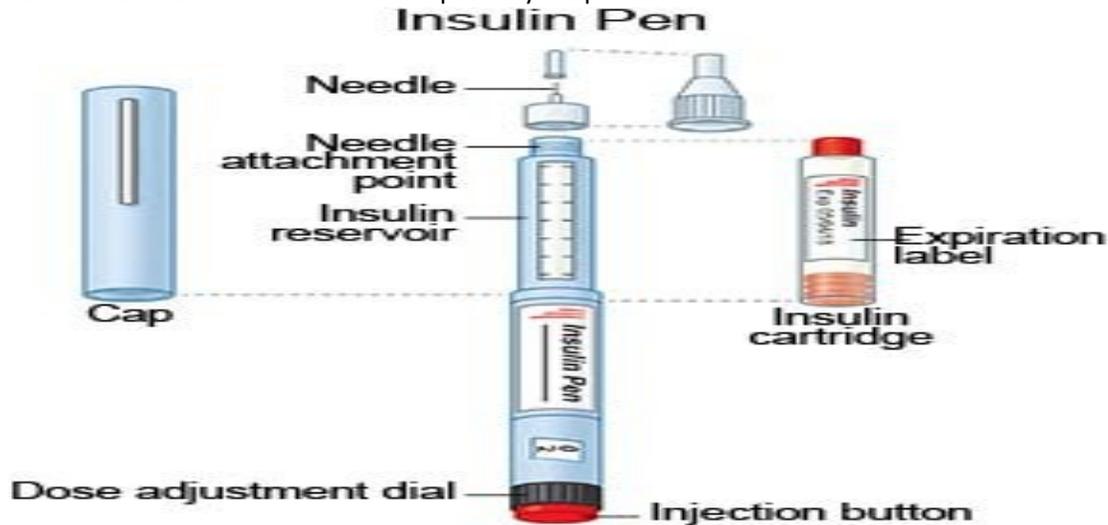
Preparing Insulin Dose from Vial:

- Always wear gloves when preparing and administering insulin!
- Gather your insulin supplies: Get your insulin vial and a fresh syringe. Check the insulin vial to make sure it is the right kind of insulin and that there are no clumps or particles in it. Also make sure the insulin is not being used past its expiration date.
- Gently stir intermediate or premixed insulin: Turn the bottle on its side and roll it between the palms of your hands. Clear (fast-acting, long-acting) insulin generally does not need to be stirred.
- Prepare the insulin bottle: If the insulin bottle is new, remove the cap. Initial and date the vial or pen after opening.
- Pull air into the syringe: Remove the cap from the needle. Pull back the plunger on the syringe to draw in an amount of air that is equal to your insulin dose. The TIP of the black plunger should correspond to the number on the syringe.
- Inject air into the vial: Hold the syringe like a pencil and insert the needle into the rubber stopper on the top of the vial. Push the plunger down until all of the air is in the bottle. This helps to keep the right amount of pressure in the bottle and makes it easier to draw up the insulin.
- Draw up the insulin into the syringe: With the needle still in the vial, turn the bottle and syringe upside down (vial above syringe). Pull the plunger to fill the syringe to the desired amount.
- Check the syringe for air bubbles: If you see any large bubbles, push the plunger until the air is purged out of the syringe. Pull the plunger back down to the desired dose.
- Remove the needle from the bottle: Be careful to not let the needle touch anything until you are ready to inject.

Preparing Insulin Dose from Pen:

1. **PROTECT:** Always wear gloves when preparing and administering insulin!
2. **CHECK THE PEN:** Look at patient name, drug name, dose amount, and expiration date. COMPARE LABEL WITH THE MAR. Ensure that it contains the proper type of insulin and contains enough to cover your full dose.
3. **MIX SUSPENSIONS:** Gently stir intermediate or premixed insulin: Turn the pen on its side and roll it between the palms of your hands. Clear (fast-acting, long-acting) insulin generally does not need to be mixed.
4. **NEEDLE:** Attach a fresh pen needle. Screw or click the needle securely in place according to the manufacturer's instructions. Remove the cap(s) from the pen needle to expose the needle.
5. **PRIME THE PEN:** Pointing the needle up in the air, dial one or two units on the pen and press the plunger fully with your thumb. Repeat until a drop appears.

6. **DIAL YOUR DOSE:** Turn the dial on the pen to your prescribed dose.



Delivering an injection:

1. **SELECT A SITE:** Choose a spot on your skin that you can see and reach. It is important to not “overuse” any one area of skin. See the information below on “rotating” injection sites.
2. **CLEAN SKIN:** Make sure skin is clean. It is generally not necessary to wipe the skin with alcohol before injecting. Those at a high risk of infection should discuss site preparation procedures with their healthcare team.
3. **PINCH THE SKIN:** Pinch a one-to-two-inch portion of skin and fat between your thumb and first finger.
4. **PUSH NEEDLE INTO SKIN:** With your other hand, hold the syringe or pen like a pencil at a 90-degree angle to the skin and insert the needle with one quick motion. Make sure the needle is all the way in.
5. **INJECT THE INSULIN:** Let go of the skin pinch before you inject the insulin. Push the plunger with your thumb at a moderate, steady pace until the insulin is fully injected. If using a syringe, keep the needle in the skin for 5 seconds. *If using a pen, keep the needle in the skin for 10 seconds.*
6. **PULL OUT THE NEEDLE:** Remove at the same 90-degree angle at which you inserted the needle. Press your injection site with your finger for 5-10 seconds to keep insulin from leaking out.
7. **REMOVE THE NEEDLE:** If using a pen, remove the needle from the pen by replacing the large cover and unscrewing. Leaving the needle on the pen can result in leakage or air bubbles.
8. **DISPOSE OF USED NEEDLE:** It is important to protect yourself, your loved ones, sanitation workers and pets from accidental needle sticks. Do not recap syringes before throwing them away. Place used syringes and pen needles in sharps container. When the container is full dispose according to standards set forth by your facility.

Rotating injection sites:

- Insulin is injected into the fat layer below the skin on the abdomen (staying two fingers or a few inches away from the belly button), outer thighs, hips, buttocks, or backs of the arms.
- Although insulin injections are usually painless, injecting the same spot repeatedly can cause inflammation or fat tissue breakdown. Lipodystrophy, as this is called, can cause lumps/swelling and thickened skin, and it may keep insulin from absorbing properly. Nearly half of all people who take insulin develop lipodystrophy, particularly when injection sites are not rotated properly.
- Most forms of rapid and long-acting insulin absorb consistently from just about any body part, so it is acceptable to use a variety of body parts for injections and to use a variety of spots within each body part.
- Please be sure and document on the MAR where the injection was given. If you are giving a sliding scale insulin, please document the amount of insulin you are giving.

- Intermediate-acting (cloudy) insulin and premixed insulin absorb differently in different body parts. It is best to inject intermediate-acting insulin into one part of the body consistently, but a variety of spots within that body part should be used.
 - Always use a fresh new needle when injecting insulin!
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Insulin Comparison Table (from Epocrates):

Rapid-acting:

- **Insulin aspart (Fiasp 100 u/ml, Novolog 100 u/ml)**
 Dosage forms: INJ (U-100 pen): 100 units per mL; INJ (U-100 vial): 100 units per mL
 Route of administration: SC/IV
- **Insulin glulisine (Apidra 100 u/ml)**
 Dosage forms: INJ (U-100 pen): 100 units per mL; INJ (U-100 vial): 100 units per mL
 Route of administration: SC/IV
- **Insulin lispro (Admelog, 100 u/mL)**
 Dosage forms: INJ (U-100 vial): 100 units per mL; INJ (U-100 pen): 100 units per mL
 Route of administration: SC/IV
- **Insulin lispro (Humalog 100 units/mL, Humalog 200 u/ml)**
 Dosage forms: INJ (U-100 vial): 100 units per mL; INJ (U-100 pen): 100 units per mL; INJ (U-200 pen): 200 units per mL
 Route of administration: SC/IV

Short-acting:

- **Insulin regular (Humulin R 100 u/ml, Novolin R 100 u/mL)**
 Route of administration: SC/IV

Short to intermediate-acting:

- **Insulin regular (Humulin 500 units/mL)**
 Route of administration: SC
 Do not mix with any other insulin

Intermediate-acting/rapid-acting combination:

- **Insulin aspart protamine/insulin aspart (Novolog mix)** - do not mix w/ any insulin in syringe
- **Insulin lispro protamine/insulin lispro (Humalog mix)** - do not mix w/ any insulin in syringe

Intermediate-acting/short-acting combination:

- **Insulin NPH/insulin regular (Humulin or Novolin mix)**
 Special note: Do not mix w/ any insulin in syringe
 Humulin 70/30 mix: onset 0.5h, peak 2-12h, duration 18-24h

Intermediate-acting:

- **Insulin NPH (Humulin N, Novolin N):**
 Dosage forms: INJ (U-100 pen): 100 units per mL; INJ (U-100 vial): 100 units per mL
 Special note: may mix w/ rapid or short-acting insulin in syringe
 Indication: Type 1 or Type 2

Long-acting:

- **Insulin degludec (Tresiba):**
Dosage forms: INJ (U-100 pen): 100 units per mL; INJ (U-200 pen): 200 units per mL
Special Note: Do not mix w/any insulin in syringe
- **Insulin detemir (Levemir):**
Dosage forms: INJ (U-100 pen): 100 units per mL; INJ (U-100 vial): 100 units per mL
Special Note: Do not mix with any insulin in syringe
- **Insulin glargine (Basaglar 100 units/ml):**
Dosage forms: INJ (U-100 pen): 100 units per mL
- **Insulin glargine (Lantus 100 units/mL):**
Special note: do not mix w/ any insulin in syringe
Dosage forms: INJ (U-100 pen): 100 units per mL; INJ (U-100 vial): 100 units per mL
- **Insulin glargine (Toujeo 300 units/mL):**
Dosage forms: INJ (U-300 pen): 300 units per mL
Special Note: strength clarification Info: delivers dose in 1 unit increments; do not mix w/any insulin in syringe

FlexTouch Pens

FlexTouch Pens are used by several different types of insulin including insulin aspart (Fiasp U-100, Novolog U-100), insulin degludec (Tresiba U-100, Tresiba U-200, insulin degludec and liraglutide combo (Xultophy U-100), and insulin detemir (Levemir U-100).



(Figure A)

Prepare the Pen:

1. **Pull the pen cap straight off.**
2. **Check insulin type** - Read the label to check you have the right insulin. The insulin types that are not a mixture should be clear and colorless.
3. **Attach a new needle** - Pull off the paper tab. Push and twist the needle on until it is tight. Pull off the outer needle cap but do not throw away. Pull off the inner needle cap and throw it away.
4. **Prime the pen** - Turn the dose selector to select **2 units**. Hold the pen with the needle pointing up. Tap the top of the pen gently to let any air bubbles rise to the top. Press and hold the dose button until the dose counter shows 0. Make sure a drop appears. If you do not see a drop of insulin, repeat steps on priming the pen, but no more than 6 times. If you still do not see a drop of insulin, change the needle and repeat steps on priming.

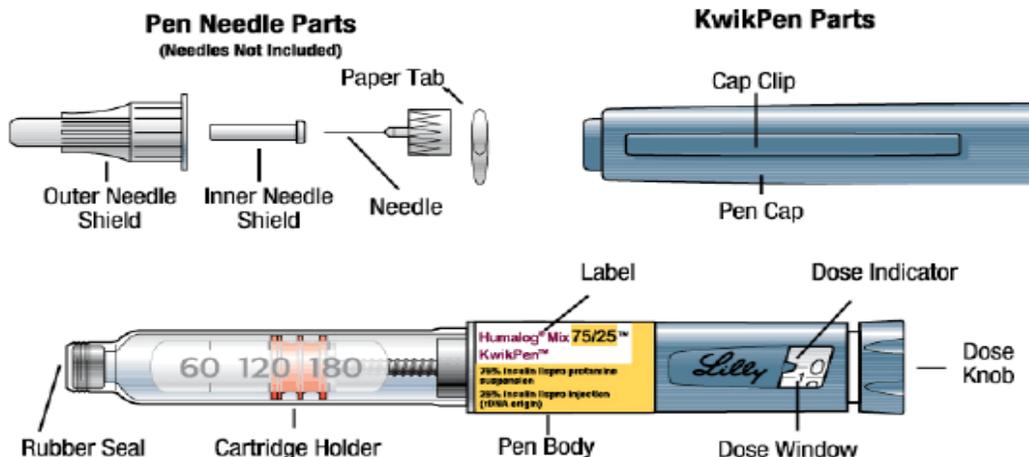
Give an Injection:

5. **Select dose** - Turn the dose selector to select the number of units you need to inject.
6. **Give the injection** - Wipe the skin with an alcohol swap. Let the injection site dry before you inject the dose. Insert the needle. Press and hold the dose button. **After** the dose counter reaches 0, slowly count to 6. **Please note** that if the needle is removed before the 6-second count is completed after the dose counter returns to "0," then under dosing may occur by as much as 20%, resulting in the need for increasing the frequency of checking blood sugar and possible additional insulin administration.
7. **Remove needle** - Carefully remove the needle and place it in a sharps container. Replace the pen cap.

Remove the Rotating your injection site:

- Insulin can be injected in the thigh, abdomen, or upper arm. It's important to change the injection site within the injection area each time you inject and not inject into the exact same spot each time.
- Rotating where you inject allows the body to absorb the insulin and can help to prevent skin changes such as thickening or pitting, known as lipodystrophy.

KWIKPEN



Prepare the KwikPen:

1. Wash your hands with soap and warm water or use a hand sanitizer.
2. Remove the Pen cap by pulling it straight off. Do not twist it off.
3. Check the insulin for: Correct type of insulin, Expiration date, Color of insulin. Insulin is either cloudy or clear. For cloudy insulin only: roll the Pen between your palms 10 times and invert the Pen 10 times until the insulin looks evenly mixed.
4. Clean the rubber stopper with an alcohol pad.
5. Screw the needle onto the pen. Remove the outer needle shield but don't throw it away! Remove the inner needle shield and throw it away.

Prime the KwikPen - Important to prime pen before each shot to make sure you don't give too much or too little insulin!

6. Dial 2 units by turning the dose knob.
7. Hold the Pen with the needle pointing up. Tap the cartridge holder to gently move air bubbles to the top.
8. With the needle still pointing straight up, push the dose knob up until it stops and you see 0 in the dose window. Hold the dose knob in and count to 5 slowly. While pushing the dose knob in, you should see a stream of insulin come out of the tip of the needle. If you only see a few drops, your Pen isn't primed. Repeat steps 1 through 3. Your Pen is primed and ready to use only when a stream of insulin is released during step 3.

Give a shot:

9. Turn the dose knob to the number of units you need to inject. The even numbers are printed on the dose window. The odd numbers are shown as full lines.
10. Insert the needle into your skin. Put your thumb on the dose knob and push it until it stops. Hold the dose knob in and count to 5 slowly. Remove the needle from your skin. Check to make sure that you see "0" in the dose window. This means that you've received a full dose.

Disposal, storage and important notes:

- Do not store the pen with the needle attached. Leaving a needle on your Pen can cause insulin to leak out, dry up causing the needle to clog, or air bubbles to get in the Pen cartridge. To remove the needle, place the outer needle shield onto the needle. Unscrew the capped needle and throw away in sharps container)
- Put the cap on the Pen by aligning the cap clip with the dose indicator.
- Before you use your Pen for the first time, store it in the refrigerator. Do not use it if it has been frozen.
- Don't store your Pen in the refrigerator after you start using it. Keep it at room temperature and away from direct heat or light.
- The KwikPen should be dated after opening. The Pens are good 28 days after opening.
- Several different insulins use the KwikPen including Humalog, Humalog Mix 75/25, Humalog Mix 50/50, Basaglar, Humulin R U-500, Humulin N, and Humulin 70/30. The different products will have different colored labels. Make sure you use the right pen!

SOLOSTAR PENS



Solostar Pens are used by Apidra, Lantus, and Toujeo.

STEP 1. GET READY: Remove the pen cap with clean hands. Check the reservoir to make sure the insulin is clear and colorless and has no particles—if not, use another pen.

STEP 2. ATTACH THE NEEDLE: Wipe the pen tip (rubber seal) with an alcohol swab. Remove the protective seal from the new needle, line the needle up straight with the pen, and screw the needle on. Do not make the needle too tight. If you have a push-on needle, keep it straight as you push it on.

After you have attached the needle, take off the outer needle cap and save it (you will need it to remove the needle after your injection). Remove the inner needle cap and throw it away. Insulin pens, needles, or syringes must never be shared between patients. Do NOT reuse needles.

STEP 3. PERFORM A SAFETY TEST: Dial a test dose of 2 units. Hold pen with the needle pointing up and lightly tap the insulin reservoir so the air bubbles rise to the top of the needle. This will help you get the most accurate dose. Press the injection button all the way in and check to see that insulin comes out of the needle. The dial will automatically go back to zero after you perform the test. If no insulin comes out, repeat the test 2 more times. If there is still no insulin coming out, use a new needle and do the safety test again.

STEP 4. SELECT THE DOSE: Make sure the window shows “0” and then select the dose. Otherwise you will inject more insulin than you need and that can affect your blood sugar level. Dial back up or down if you dialed the wrong amount. Check if you have enough insulin in the reservoir. If you cannot dial the dose you want it may be because you don’t have enough insulin left. You cannot dial more than 80 units because the pen has a safety stop. If your dose is more than 80 units, you will need to redial the rest of your dose. If you don’t have enough insulin for the rest of your dose you will need to use a new pen.

STEP 5. INJECT YOUR DOSE: Clean site with an alcohol swab. Keep the pen straight, insert the needle into your skin. Using your thumb, press the injection button all the way down, when the number in the dose window returns to 0 as you inject, slowly count to 10 before removing. (Counting to 10 will make sure you get your full insulin dose.) Release the button and remove the needle from your skin.

STEP 6. REMOVE THE NEEDLE: Insulin pens, needles, or syringes must never be shared between patients. Do NOT reuse needles. After injecting, always remove the needle to prevent contamination and leaking. Put the outer needle cap back on the needle and unscrew (or pull) the needle from the pen. Throw needle away in a sharps container. Put the pen cap back on the pen and store in a safe place at room temperature.

GLP-1 Agonists - activate glucagon-like-peptide-1 (GLP-1) receptors, increasing insulin secretion, decreasing glucagon secretion, and delaying gastric emptying (incretin mimetic)

- Adlyxin (lixisenatide):**
Dosage forms: INJ (pen): 10 mcg per injection, 20 mcg per injection
Indication: diabetes mellitus, type 2
Storage: Refrigerate until opened. Date pen when opened. Must be discarded 14 days after activation.
- Bydureon (exenatide):**
Dosage forms: INJ (pen): 2 mg per injection; INJ (vial): 2 mg per 0.65 mL
Indication: diabetes mellitus, type 2
Storage: Refrigerate until opened. Date pen when opened. Can be kept up to 4 weeks at room temperature
- Bydureon Bcise (exenatide):**
Dosage forms: INJ (auto-injector): 2 mg per injection
Indication: diabetes mellitus, type 2
Storage: Date pen when opened. Can be kept up to 4 weeks at room temperature.
- Byetta (exenatide):**
Dosage forms: INJ (pen): 5 mcg per injection, 10 mcg per injection
Indication: Diabetes Mellitus, type 2
Storage: Refrigerate until opened. Date when opened. May store up to 30 days at room temperature.
- Ozypic (semaglutide):**
Dosage forms: INJ (pen): 0.5 mg per injection, 1 mg per injection
Storage: Refrigerate until opened. Date when opened. Discard 56 days after opened.
- Soliqua 100/33 (insulin glargine/lixisenatide):**
Storage: Refrigerate until opened. Date when opened. Discard 14 days after opening.
- Trulicity (liraglutide):**
- Victoza (liraglutide):**
- Xultophy 100/3.6 (insulin degludec/liraglutide):**

Medication	Unopened	Opened
GLP1-Agonist	Refrigerated (36°F to 46°F)	Room Temperature (59°F to 86°F)
Adlyxin® (lixisenatide)	Refrigerate before opening	14 days
Bydureon® (exenatide)	Refrigerate before opening	28 days
Bydureon® Bcise (exenatide)	Refrigerate before opening	28 days
Byetta (exenatide)	Refrigerate before opening	30 days
Ozypic (semaglutide)	Refrigerate before opening	56 days
Soliqua (insulin glargine/lixisenatide)	Refrigerate before opening	14 days
Trulicity (liraglutide)	Refrigerate before opening	14 days
Victoza (liraglutide)	Refrigerate before opening	30 days
Xultophy (insulin degludec/liraglutide)	Refrigerate before opening	21 days

Bydureon (exenatide extended-release) injectable suspension

- Once weekly injection indicated for Type 2 Diabetes Mellitus
- Comes in a Single-Dose Tray contains 1 Bydureon vial, 1 syringe, 2 needles, and 1 vial connector.

Storing Bydureon:

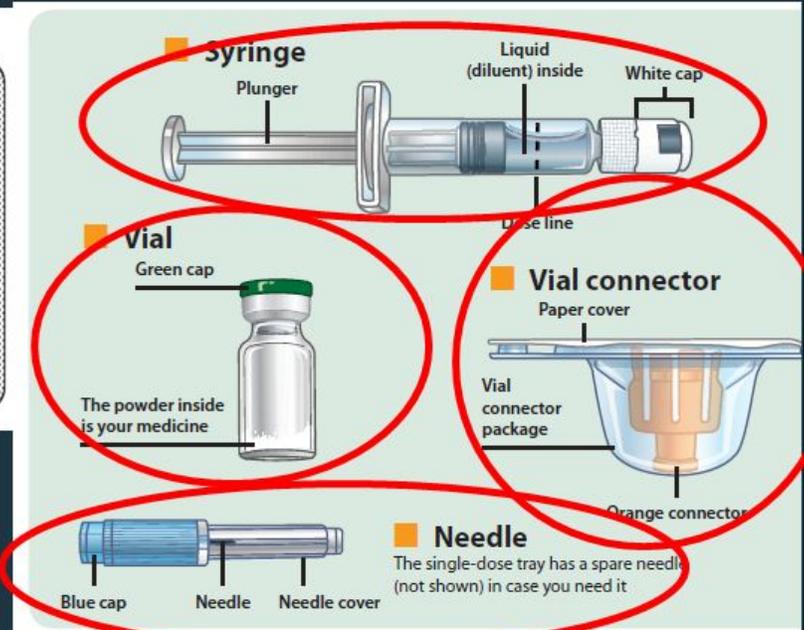
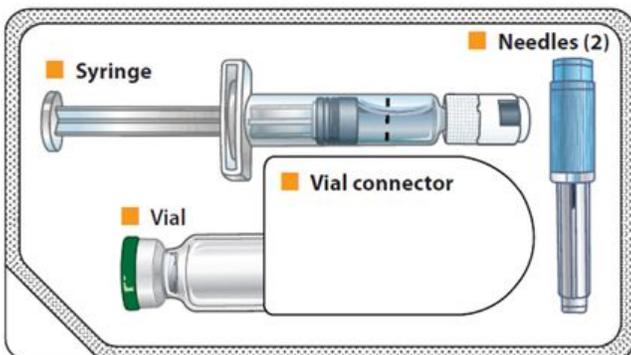
- Store in the refrigerator at 36 F to 46 F until opening
- Protect the pen from light until you are ready to prepare a dose
- Do NOT freeze the pen and do NOT use if it has been frozen
- Keep in the sealed tray until ready for use
- Can be kept out of the refrigerator at 68 F to 77 F for up to 4 weeks.

Getting Started:

- Take the single-dose tray out of the refrigerator and let it rest flat for 15 minutes to warm to room temperature.
- Wash your hands
- Peel back the paper cover to open. Remove the syringe. The liquid in the syringe should be clear with no particles in it. It is OK if there are air bubbles.
- Pick up the needle and twist off the blue cap. Set the covered needle aside.
- Pick up the vial and tap it several times on a hard surface to loosen the powder.
- Use your thumb to remove the green cap. Put the vial aside.

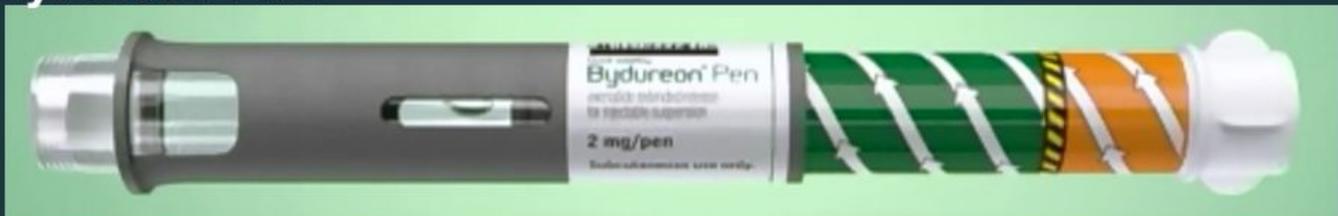
Bydureon Single Dose Tray (“kit”) – vial & syringe:

Single-dose tray



1. Powder (Bydureon)
2. Liquid microspheres
3. Orange connecting device
4. Needle

Bydureon Pen:



http://www.azpicentral.com/bydureon/ifu_bydureon.pdf

Connecting the Parts:

- Pick up the vial connector package and peel off the paper cover. Do not touch the orange connector inside.
- Hold the vial connector package in one hand and the vial in the other hand.
- Press the top of the vial firmly into the orange connector.
- Lift the vial with the orange connector attached out of the package. Set it aside for later.
- Pick up the syringe in one hand. With the other hand, firmly grasp the 2 gray squares on the white cap.
- Break off the cap. Be careful not to push in the plunger.
- Pick up the vial with the orange connector attached. Twist the orange connector onto the syringe until it is snug.

Mixing the Medication and Filling the Syringe:

- Please note after the medication is mixed it must be injected. It should not be mixed for injection later.
- With your thumb, push down the plunger until it stops.
- Hold the plunger down and shake hard. Keep shaking until the liquid and powder are mixed well.
- The medication should look cloudy after it is mixed. If there are still clumps of powder on the sides or bottom of the vial, it is not mixed well.
- Hold the vial upside down so the syringe is pointing up. Continue to hold the plunger in place with your thumb.
- Gently tap the vial with the other hand. Continue to hold the plunger in place.
- Pull the plunger down beyond the black dashed dose line to draw the medication from the vial into the syringe.
- With one hand, hold the plunger in place so it does not move. With the other hand, twist the orange connector to remove it from the syringe. Be careful not to push in the plunger.

Injecting the medication:

- Pick up the needle. Twist the needle onto the syringe until it is snug. Do not remove the needle cover yet.
- Slowly push in the plunger so the top of the plunger lines up with the black dashed Dose Line.
- The top of the plunger must stay lined up with the black dashed Dose Line to ensure the correct dose is given.
- Please note it is normal to see a few bubbles in the mixture.
- The medication can be injected in the stomach area, thigh, or the back of the upper arm.
- Pick up the syringe and hold it near the black dashed Dose Line.
- Pull the needle cover straight off (do not twist). Be careful not to push in the plunger. When you remove the cover, you may see 1 or 2 drops of liquid. This is normal.
- Insert the needle into the skin. Push down on the plunger with your thumb until it stops. Hold the needle in the skin for 10 seconds to make sure the entire dose is given. Withdraw the needle. Discard the used needle in the sharps container.

Bydureon device: Overview of the Connect, Shake, Inject process

- Contains an overview of the injection device
 - Straightforward dosing: Connect, Shake, Inject



- Remember: Patients should follow all of the steps in the instructions for the user that comes with the single-dose kit

Bydureon Bcise (exenatide extended release) injection

ABOUT THE PEN:

- Once-weekly injectable suspension for subcutaneous use only
- Single use, fixed dose autoinjector that automatically injects your medicine
- Comes in the locked position before use. Do not unlock the autoinjector until you are ready to inject
- Needle is hidden. You do not see it before, during, or after using the autoinjector.
- Do not use the autoinjector if any parts look to be broken or damaged.
- Store flat in the refrigerator between 36°F to 46°F (2°C to 8°C)

Before Use



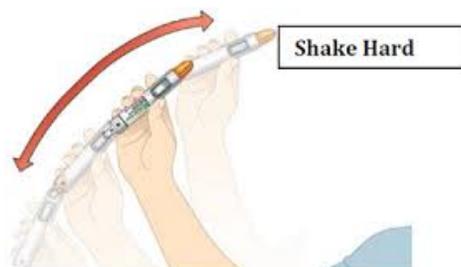
S

Step 1: Prepare for Injection:

- Let your autoinjector come to room temperature. [Remove 1 autoinjector from the refrigerator and rest it flat for 15 minutes](#). Autoinjector can be kept at room temperature for up to 4 weeks.
- Check the expiration date (labeled EXP) printed on the autoinjector label. Do not use the autoinjector past the expiration date. If the expiration date has passed, throw it away and get a new autoinjector.
- Wash your hands.
- Choose your injection site. You can inject into the stomach, thigh, or back of the upper arm. Each week you can use the same area of the body but choose a different injection site in that area of the body. Clean the area with an alcohol swab.

Step 2: Mix the medicine:

- Look in the window. You may see white medicine along the sides, bottom or top. This means the medicine is not mixed evenly.
- Shake the autoinjector hard, in an up-and-down motion, until the medicine is mixed evenly, and you do not see any white medicine along the sides, bottom or top. [Shake for at least 15 seconds](#). The autoinjector may need to be shaken longer than 15 seconds if the autoinjector has not been correctly stored flat.
- Do not go to the next step unless the medicine is mixed well. To get a full dose, the medicine must be mixed well and look cloudy. If not mixed well, continue to shake hard.



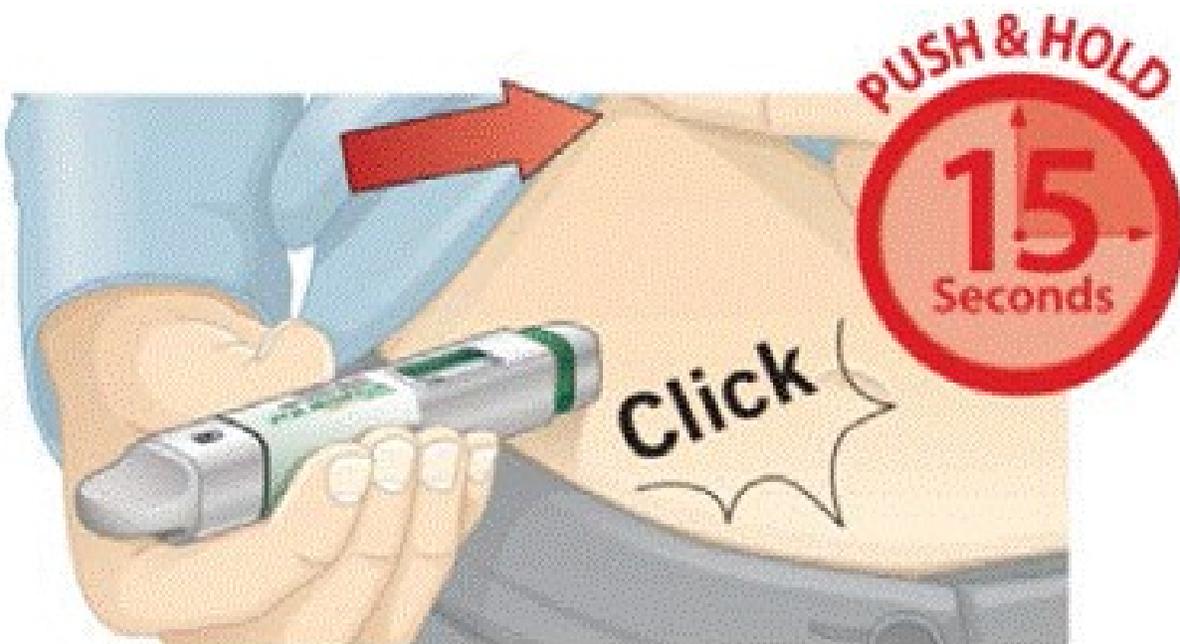
Step 3: Prepare the Autoinjector:

- Important: After the medicine is fully mixed, you must complete the preparation steps right away, and inject to get the full dose. Do not save it to use later.
- Only unlock the autoinjector when you are ready to inject
- Unlock the autoinjector. Hold the autoinjector up straight with the orange cap toward the ceiling. Turn the knob from the Lock to the Unlock position until you hear a click.
- While still holding the autoinjector straight up, firmly unscrew the orange cap. You may need to turn the cap a few times before it loosens (if you hear clicking you are turning in the wrong direction). Continue holding the autoinjector upright to prevent the medicine from accidentally leaking. A green shield will pop up after the cap is removed. The green shield hides the needle. It is normal to see a few drops of liquid inside the cap. Do not recap the autoinjector. Throw away the cap



Step 4: Inject the Dose:

- Inject and hold: Push the autoinjector against your skin. You will hear a “click” when the injection begins. [Keep holding the autoinjector against the skin for 15 seconds](#). This is to make sure you get the full dose.
- Make sure you received your full dose. After you receive your injection, you will see an orange rod in the window. After you lift the autoinjector from your skin, the green shield will move back up to lock over the needle.
- Disposal. Put your used autoinjector in a FDA-cleared sharps disposal container right away after use.



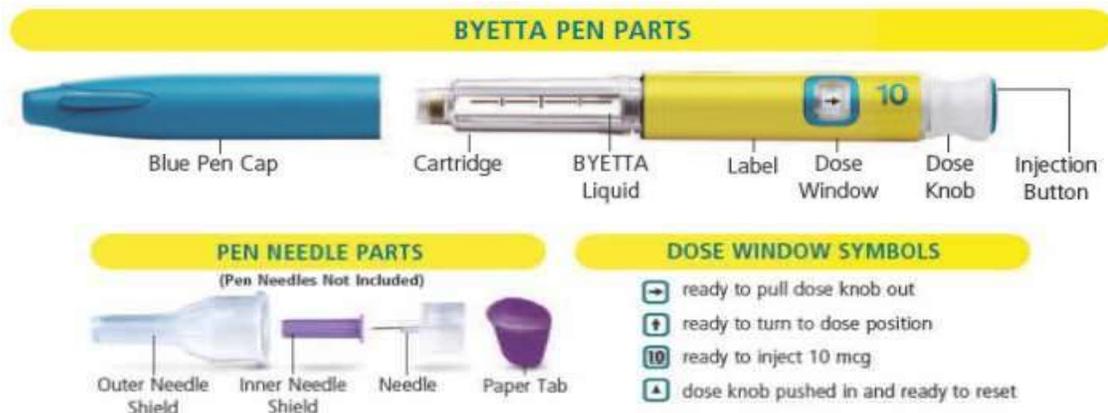
Byetta (exenatide) injection

Important information about the pen:

- GLP-1 Agonist indicated for the treatment of Type 2 Diabetes Mellitus
- Available as a 5 mcg per injection and a 10 mcg per injection pen
- Pen contains enough medication for injection 2 times a day for 30 days.
- The pen automatically measures the correct dose.
- The medication in the pen should NOT be transferred to a syringe or vial
- Do NOT mix Byetta and insulin in the same syringe or vial even if they are ordered at the same time
- Disposable needles gauge 29, 30, or 31 should be used with the pen
- Do NOT push the injection button on the pen unless a needle is attached to the pen

Storage and handling:

- Prior to first use, store the unused pen in the original carton in the refrigerator at 36 F to 46 F.
- After first use, the pen should be kept at room temperature not to exceed 77 F
- Do NOT freeze. Do not use the pen if it has been frozen.
- Protect from light.
- Do NOT store the pen with the needle attached. If the needle is left attached, the medication may leak from the pen and air bubbles may form in the cartridge.
- The pen can be used up to 30 days after setting the pen up for first use. After 30 days, throw away the pen, even if it is not completely empty.



One-Time Only New Pen Setup:

Step A – Check the Pen:

- Wash hand prior to use
- Check label to make sure you have the right pen
- Pull off the blue pen cap. Check the cartridge to make sure the liquid is clear, colorless, and free of particles

Step B - Attach the needle

- Remove the paper tab from the outer needle shield
- Push the needle shield containing the needle straight onto the pen, then screw the needle on until it is secure
- Pull off the outer needle shield but do NOT throw it away
- Pull of the inner needle shield and throw it away. A small drop of liquid may appear. This is normal.

Step C - Dial the dose:

- Check to make sure that the arrow is in the dose window pointing toward the number on the pen (5 or 10). If not, turn the dose knob away from you (clockwise) until it stops, and the arrow is in the dose window.
- Pull the dose knob out until it stops, and the up arrow is in the dose window.
- Turn the dose knob away from you until it stops at the dose (5 or 10) in the dose window.

Step D - Prepare the pen:

- Point the needle of the pen up and away from you
- Using your thumb, push and hold the injection button firmly for 5 seconds. If you do not see a stream or several drops come out of the needle tip, repeat steps C & D.
- Pen preparation is complete when the up arrow is in the center of the dose window and you have seen a stream or several drops come out of the needle tip.

Routine Use:

Step 1 – Check the pen:

- Check label to make sure you have the right pen
- Pull off the blue pen cap
- Check the cartridge to make sure the liquid is clear, colorless, and free of particles
- Note: A small air bubble will not harm the patient or affect the dose

Step 2 – Attach the needle:

- Remove the paper tab from the outer needle shield
- Push the needle shield containing the needle straight onto the pen, then screw the needle on until it is secure
- Pull off the outer needle shield but do NOT throw it away
- Pull of the inner needle shield and throw it away. A small drop of liquid may appear. This is normal.

Step 3 – Dial the dose:

- Check to make sure that the arrow is in the dose window pointing toward the number on the pen (5 or 10). If not, turn the dose knob away from you (clockwise) until it stops, and the arrow is in the dose window.
- Pull the dose knob out until it stops, and the up arrow is in the dose window.
- Turn the dose knob away from you until it stops at the dose (5 or 10) in the dose window.

Step 4 – Inject the dose:

- Grip pen firmly and inject subcutaneously
- Use your thumb to firmly push the injection button in until it stops. Continue holding the injection button and count to 5 to get the full dose. Remove the needle from the skin
- Injection is complete when the up arrow is in the center of the dose window. The pen is now ready to reset.

Step 5 – Reset the pen:

- Turn the knob away from you until it stops, and the arrow is pointing to the right.
- If you can't turn the dose knob or if the pen leaks, the full dose has not been delivered.

Step 6 – Reset the Pen:

- Carefully put the outer needle shield back over the needle.
- Unscrew the needle.
- Remove the needle after each injection

Step 7 – Store Pen for next dose:

- Replace the Blue Pen Cap on the pen before storage
- Store the Pen at a temperature between 36 F and 77 F.

TRULICITY (DULAGLUTIDE)

- GLP-1 Agonist indicated for treatment of Type 2 Diabetes Mellitus
- Available in 0.75 mg injection and 1.5 mg injection
- TRULICITY Single-Dose Pen (Pen) is a disposable, prefilled medicine delivery device. Each Pen contains 1 dose of
- Each Pen should only be used 1 time.
- Dose is given once a week

Before you get started:

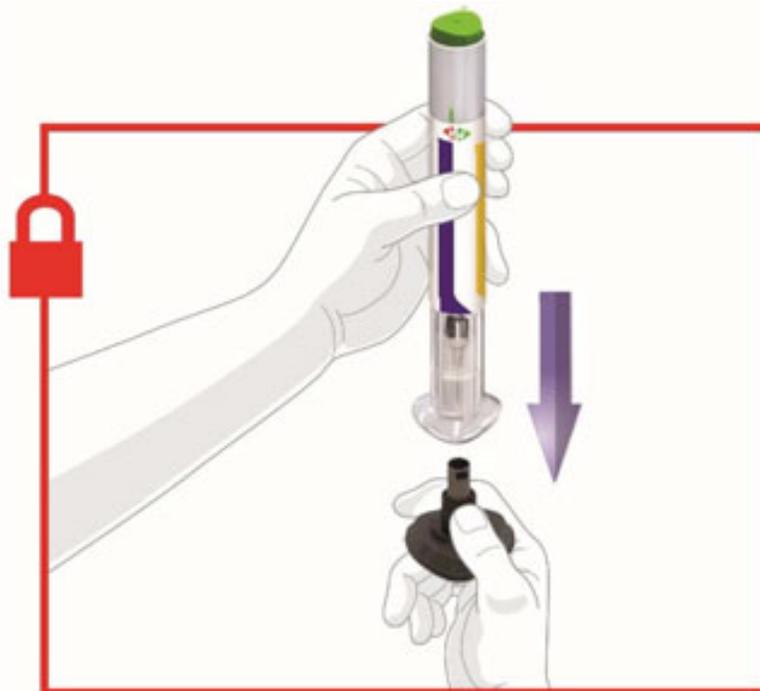
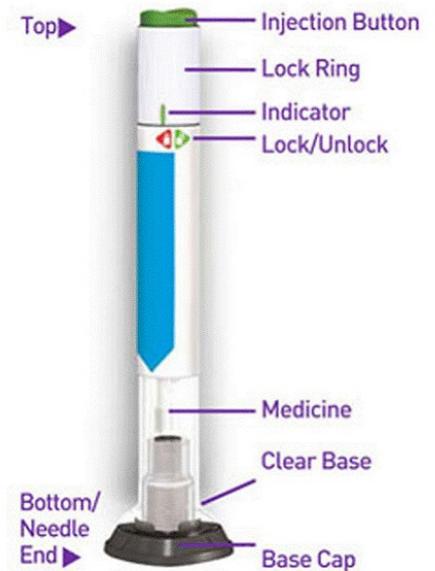
- Remove the pen from the refrigerator
- Check the label to make sure you have the right medication and it has not expired
- Inspect the pen to make sure it is not damaged. Make sure the liquid
- Is not cloudy or discolored and is free of particles
- Wash your hands

Choose the injection site:

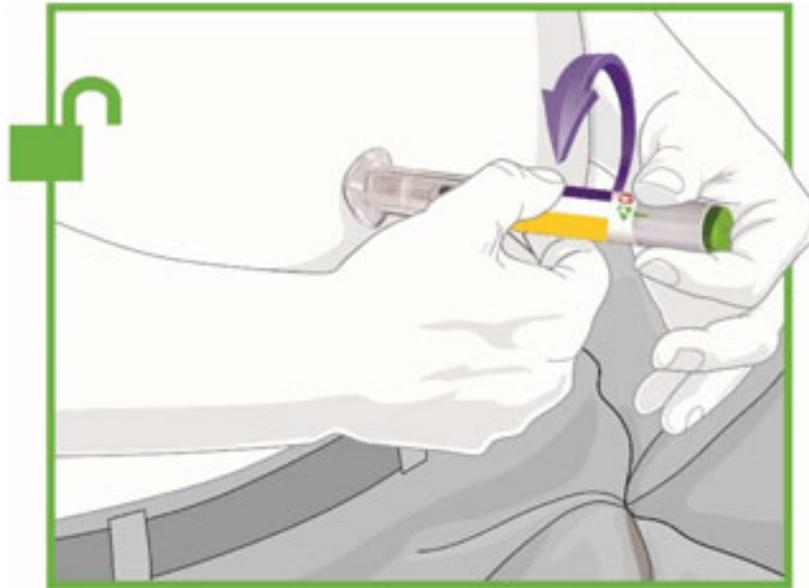
- May be given in the abdomen, thigh, or upper arm
- Rotate the injection site each week. The same area of the body may be used but choose a different injection site in that area.

Give an injection:

1. Uncap the Pen. Make sure the Pen is locked. Pull the Base Cap straight off and throw it away. Do not put the Base Cap back on— this could damage the needle. Do not touch the needle.



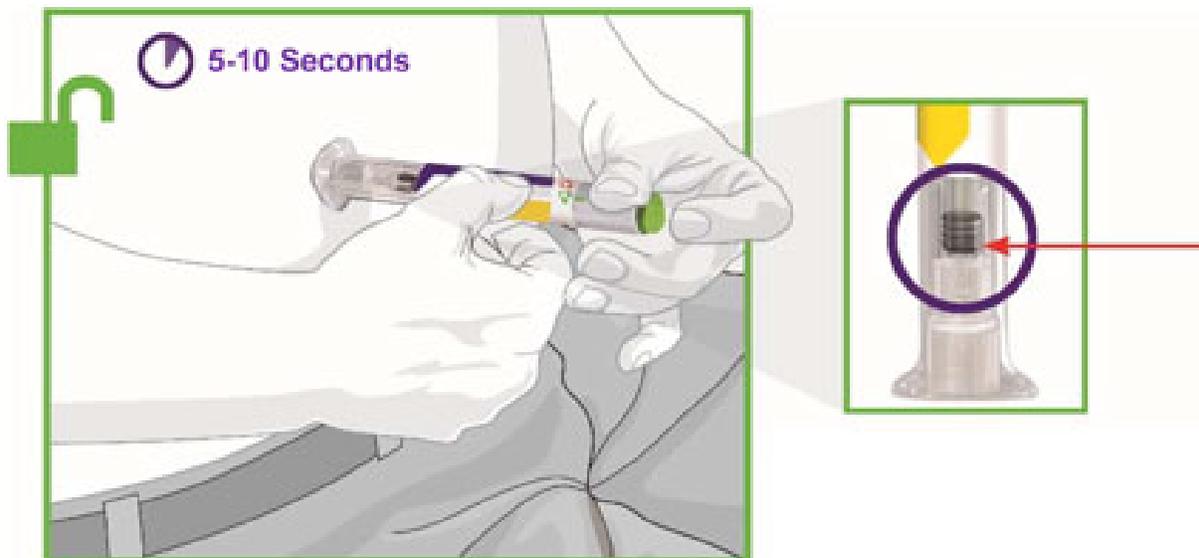
2. **Place and Unlock.** Place the Clear Base flat and firmly against the skin at the injection site. **Unlock** by turning the Lock Ring.



3. Press and hold the green Injection Button; you will hear a loud click. Continue holding the Clear Base firmly against your skin until you hear a second click. This happens when the needle starts retracting in about 5-10 seconds. Remove the Pen from your skin. The injection is complete when the gray plunger is visible.

Storage and handling:

- Store the Pen in the refrigerator between 36°F to 46°F (2°C to 8°C).
- May be stored at room temperature below 86°F (30°C) for up to a total of 14 days.
- Do not freeze your Pen. If the Pen has been frozen, throw the Pen away and use a new Pen.
- Storage in the original carton is recommended. Protect your Pen from direct heat and light.
- The Pen has glass parts. Handle it carefully. If you drop it on a hard surface, do not use it. Use a new Pen for your injection.



VICTOZA (LIRAGLUTIDE)

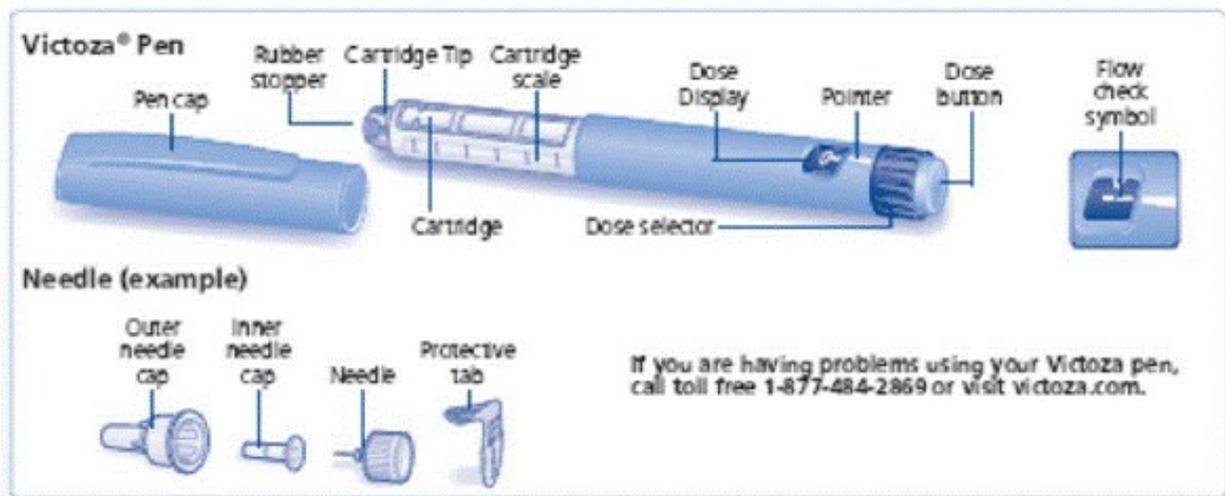
VICTOZA (liraglutide) is a glucagon-like peptide-1 (GLP-1) receptor agonist indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. It is also indicated to reduce the risk of major adverse cardiovascular events in adults with type 2 diabetes mellitus and established cardiovascular disease. It is not for treatment of type 1 diabetes mellitus or diabetic ketoacidosis and has not been studied in combination with prandial insulin.

The pen comes in a 6 mg/ml prefilled syringe that administers 0.6 mg, 1.2 mg, or 1.8 mg.

VICTOZA is injected subcutaneously once-daily at any time of day, independently of meals. Victoza should be administered at the same time every day.

VICTOZA is injected subcutaneously in the abdomen, thigh or upper arm. No dose adjustment is needed if changing the injection site and/or timing.

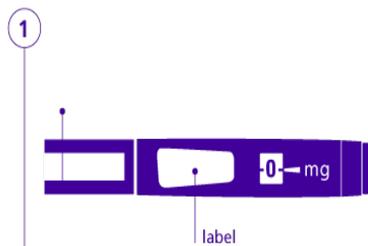
When using VICTOZA® with insulin, administer as separate injections. Never mix.



Using a new Victoza pen:

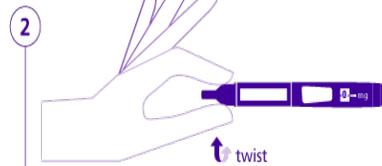
- Take pen out of fridge. Make sure you have the right patient. Initial and date the pen. Be sure to wash your hands.
- The pen should be stored in the refrigerator until first use. The pen is good stored in the refrigerator until the manufacturer's expiration date. Once opened, the pen is good for 30 days whether it is kept refrigerated or at room temperature.
- Take the lid off the pen. Make sure the liquid in the pen is clear, colorless, and free of particles. Do not use the pen if it is not.
- Wipe the rubber stopper with an alcohol swab.
- Remove the protective tab from the outer needle cap. Push the outer needle cap straight onto the pen. Screw the needle onto the pen until it is secure.
- Pull the outer needle cap off and save it. Do not throw it away.
- Pull the inner needle cap off and throw it away.
- Turn the dose selector dial until the flow check symbol lines up with the pointer. This is only done once for each new pen.
- Hold the pen with the needle pointing up. Gently tap the pen so all the air bubbles come to the top.

- Keep the needle pointing up and press the dose button until 0 mg lines up with the pointer. Repeat this step up to 6 times until a drop of Victoza appears at the needle tip. If you see no drop, do not use the pen.



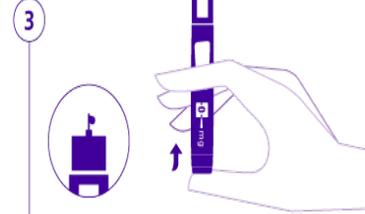
Check your medication

Read label to check that you have the right type of medication. Make sure liquid is clear and colorless.



Attach a new needle

Needles are sold separately and may require a prescription in some states. Always use a new needle for each injection. This will prevent contamination, infection, leakage of Saxenda®, and blocked needles leading to the wrong dose. Tear off paper tab. Push needle straight into pen and turn until it is on tight. Pull off both needle caps.



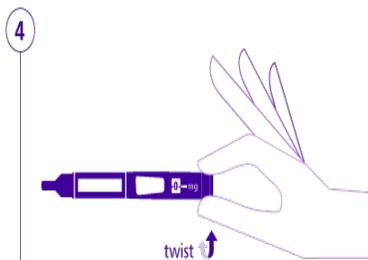
Check flow with each new pen

Check flow before first injection with each new pen.

Turn up dose selector until counter shows flow check symbol (---). Press dose button until dose counter returns to 0. Make sure that a drop appears at the needle tip.

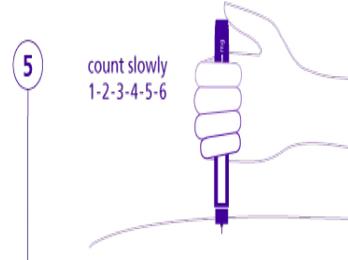
Administering a dose of Victoza:

- **Dial the Dose.** The pen can give a dose of 0.6 mg (starting dose), 1.2 mg, or 1.8 mg. Turn the dose selector until the needed dose lines up with the pointer (0.6 mg, 1.2 mg, or 1.8 mg). You will hear a “click” every time you turn the dose selector. Do not set the dose by counting the number of clicks you hear. If you select a wrong dose, change it by turning the dose selector backwards or forwards until the correct dose lines up with the pointer. Be careful not to press the dose button when turning the dose selector. This may cause Victoza to come out.
- **Injecting the Dose.** Insert needle into skin in the stomach, thigh, or upper arm. Do not inject Victoza into a vein or muscle. The pen should be held at a 90-degree angle (perpendicular) to the skin.
- **Keep the dose button pressed down** and make sure that you keep the needle under the skin for a full count of 6 seconds to make sure the full dose is injected. Keep your thumb on the injection button until you remove the needle from the skin. Rotate the injection sites within the area chosen for each dose. Do not use the same injection site for each injection.
- **Withdraw Needle:** There may be a drop at the needle tip. This is normal, and it does not affect the dose received. If blood appears after the needle is taken out of the skin, apply light pressure. Do not rub the area.
- **Carefully put the outer needle cap over the needle.** Unscrew the needle. Safely remove the needle from the pen after each use.
- **Place used needles in sharps container.** If the pen is empty or if it has been used for 30 days (even if it is not empty), throw away the used pen.



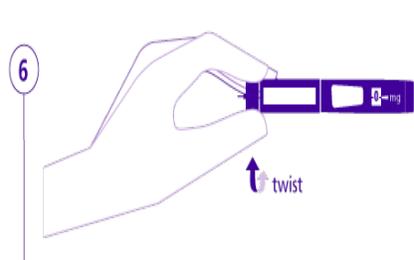
Select your dose

Turn dose selector until the dose counter is centered on your appropriate dose.



Inject your dose

Insert needle into skin. Press and hold down dose button until dose counter shows 0. Keep needle in skin and count slowly to a full 6 seconds.



Remove needle after your injection

Carefully remove needle from pen. Dispose of needle appropriately in a sharps container. Put pen cap back on pen.