

# patient education program

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## Insulin

**Insulin** is a hormone that lowers blood sugars by moving sugar out of the blood and into the cells of the body for energy. It's produced in the beta cells of the pancreas.

There are several different types of insulin with different actions:

Insulin Type	Onset	Peak (hours)	Max Duration (hours)
Humalog – “Hg”	15 – 30 minutes	½ – 2½ hours	3 – 6½ hours
NovoLog – “Ng”	10 – 30 minutes	1 – 3 hours	3 – 5 hours
Apidra	5 – 15 minutes	45 – 75 minutes	2 – 4 hours
Lantus/Basaglar	3 – 4 hours	Almost no peak	24 hours
Levemir	3 – 4 hours	Almost no peak	6 – 23 hours

**How to use:** Initially, the child's doctor will decide your/your child's insulin dose.

- Lantus/Basaglar/Levemir must be given at the same time every day.
- Humalog/NovoLog/Apidra work best when given before the meal.

### Storage:

- Keep insulin from extreme heat or cold temperatures (should be 40-85°F).
- Insulin will not be effective if it freezes (even slightly).
- UNOPENED insulin should be stored in the refrigerator.
- UNOPENED insulin should not be used past the expiration date on the bottle/pen/cartridge.
- OPENED **vials** of insulin can be stored in the refrigerator or at room temperature. (Be consistent with temperatures, don't switch back and forth.)
- In general, opened non-disposable **pen** devices that use cartridges should not be stored in the refrigerator.
- OPENED insulin (except Levemir) should be marked with the date it was opened and used for no more than 28 days.
- Levemir is the exception to this rule. Mark the date it was opened and use for no more than 42 days.

### When NOT to Use:

- Do not use Humalog, NovoLog, Levemir, Lantus or Apidra if it is cloudy, frosty in appearance, or if solid particles can be seen.
- Do not use past the expiration date on bottle/pen/cartridge if unopened.

### Additional information:

- Always communicate that the insulin is measured in “units.”
- To avoid errors in giving the wrong insulin, put a rubber band around the rapid acting insulin.
- Be sure to check the manufacturer and type of insulin before leaving the pharmacy to make sure it is the same as what you have been using.
- If blood sugars are highly erratic without any clear reason, start a new bottle.
- Do not mix or dilute Lantus or Levemir insulin in same syringes with any other insulin or diluent.
- Always have back-up bottles of insulin available. But try not to open more than one bottle at a time, to avoid confusion.
- It's a good idea to keep insulin in an insulated pack when you are away from home. (*See Diabetes and Travel Teaching Sheet.*)
- *There are several different concentrations of insulin. Never use insulin that has not been prescribed by your physician.*

**Reference: Lexi-comp online. Retrieved October 17, 2011**

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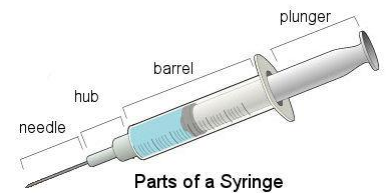
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## A GUIDE TO SUBCUTANEOUS INJECTIONS (SHOTS)

**Definition:** A subcutaneous injection (shot) is a shot into the tissues just below the outer layer of the skin. The amount of medications for subcutaneous shots is small, no more than 1 mL (milliliter).

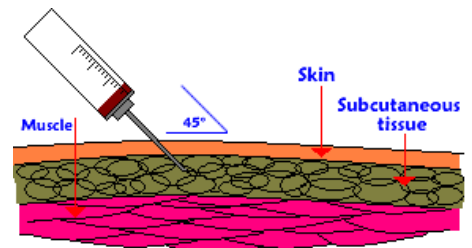
### Getting medication ready for the shot:

- Gather supplies: a new syringe, vial of medicine, alcohol wipes, and a hard plastic container to throw away needles and syringe.
- Wash hands with soap and water.
- Use a new alcohol wipe to clean the top of the medication vial. Allow alcohol to dry.
- Draw up the prescribed dose of medication into the syringe, as instructed.



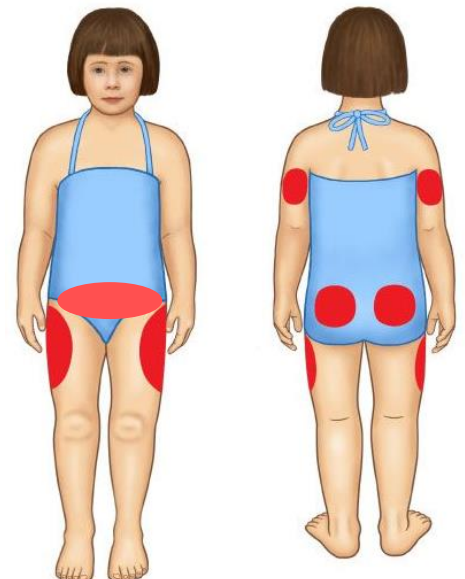
### Preparing site for shot:

- Choose a spot. The preferred spots are the hips, backs of upper arms, top of thighs, and abdomen. See the picture below.
- Avoid areas that are bruised or have signs of an infection, like redness or swelling. Remember to rotate spots with each shot.
- Cleanse spot with a new alcohol wipe.
- Allow alcohol to dry (about 10 seconds).



### Performing the shot:

- Grasp skin on both sides of the spot between your thumb and forefinger (similar to a pinching position).
- Hold the syringe like a pencil at a 90-degree angle.
- Using a quick, smooth motion, insert the entire needle into the skin.
- Slowly press down on the syringe plunger; release your grasp on the skin.
- Remove the needle smoothly, pulling out at the same angle as it was inserted.
- Do not place the plastic cover back on the needle.
- Remove the syringe and discard in a puncture proof sharps container.



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