2019

Diabetes in Pregnancy: Insulin

UNC HEALTH CARE
WOMEN'S CARE

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What is Insulin?

Insulin is a hormone that the body naturally produces. In patients with diabetes the body is not able to use insulin correctly. Patients with diabetes inject insulin to help the body break down glucose (sugar). Your provider has decided that your diabetes treatment will include administration of insulin. This booklet will guide you how to give yourself insulin safely.

It is very important to bring your blood sugar log to your appointments!

Common beliefs about insulin:

"If I start insulin I will be addicted."

FALSE: You cannot become addicted to insulin. Insulin is a hormone that is naturally produced by the body in the pancreas. Most women who are diagnosed with gestational diabetes will be able to stop using insulin after pregnancy.

"Insulin is dangerous to my baby."

FALSE: High blood sugar is more dangerous to you and your baby than insulin. Poorly controlled diabetes can lead to many problems during pregnancy and delivery. Insulin does not cross the placenta and will not harm your baby.

"I can take pills instead of insulin."

FALSE: Pills do not work as well as insulin to get blood sugar results in the right range.

"The needle will hurt my baby."

FALSE: The needles used for injecting insulin are small. They will not go deep enough to get near the placenta or your growing baby.

"If I need insulin I have the bad kind of diabetes."

FALSE: There is no good or bad kind of diabetes. Some patients are able to control their diabetes with diet changes and increased exercise. Many patients also need to add insulin to help their body control their blood sugar.

Types of Insulin

NPH (intermediate acting) - cloudy

Your provider may prescribe this insulin once or twice per day. You may need to take this both before breakfast (with Regular or Aspart/Lispro) and before bedtime (with a snack) or only before bedtime. The amount and frequency will be based on your blood sugars.

Onset (when the insulin starts to work): 2-4 hours
Peak (biggest effect): 4-10 hours
Duration (how long it lasts): 12-18 hours
Brands: Humulin N, Novolin N, Reli-On N

Regular (short acting) - clear

Usually used before breakfast and dinner by itself or with NPH.

Onset (when the insulin starts to work): within 30-60 minutes
Peak (biggest effect): within 2-3 hours

Duration (how long it lasts): within 6-10 hours
Brands: Novolin R, Humulin R and Reli-On R

Lispro, Aspart (rapid acting) - clear

Taken immediately before a meal. **It is very important to eat within 5-15 minutes after taking this insulin to avoid a low blood sugar**

Onset (starts to work) 5-15 minutes
Peak (biggest effect) 30-90 minutes
Duration (How long it lasts) less than 5 hours
Brands Humalog or Novolog

Dosage if using Rapid and NPH

10-15 minutes before breakfast:

AM NPH: _____

AM Lispro/Aspart: _____

10-15 minutes before lunch:

Lispro/aspart:_____

10-15 minutes before dinner:

Lispro/aspart:_____

Bedtime NPH (Cloudy) _____

It is very important to **have a snack with the bedtime insulin** dose to prevent your blood sugar from lowering while you sleep. Be sure your snack has 1 serving of carbohydrate and 1 serving of protein (ex. peanut butter crackers).

It is good to **keep a snack by your bed** in case of early morning low blood sugar (hypoglycemia).

Dosage if using Regular and NPH

30 Minutes before breakfast

AM NPH (Cloudy) _____

AM Regular (Clear) _____

AM total (Cloudy + Clear) _____

30 minutes before Dinner

Dinner regular (Clear) _____

Bedtime NPH (Cloudy) _____

It is very important to **have a snack with the bedtime insulin** dose to prevent your blood sugar from lowering while you sleep. Be sure your snack has 1 serving of carbohydrate and 1 serving of protein (ex. peanut butter crackers).

It is good to **keep a snack by your bed** in case of early morning low blood sugar (hypoglycemia).

Sick days

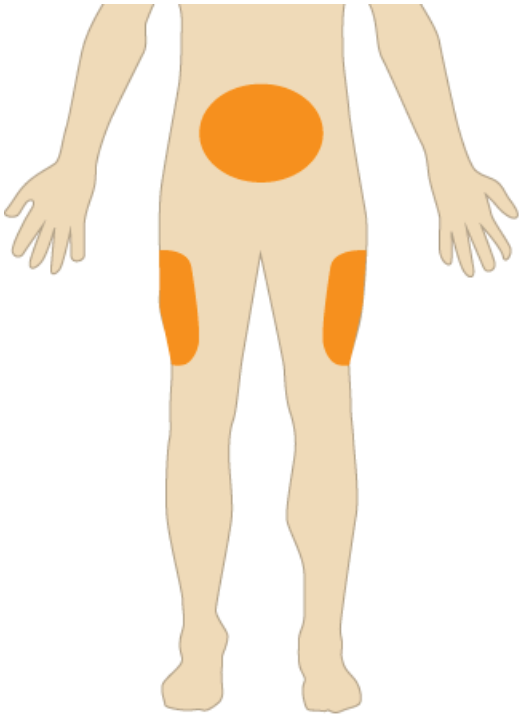
When you don't feel well, your blood sugar may go too high. If you are able to eat and drink like normally continue your normal insulin routine. If you take insulin without eating, your blood glucose could go too low. Check your blood sugar more often on sick days.

Call your provider if you are sick and can't eat or drink.

Storage of insulin

Both NPH and Regular insulin should be stored at room temperature when opened. They are good at room temperature for 28 days. Unopened insulin should be refrigerated. Never store insulin in the freezer or in direct sunlight. For more information read the package insert that comes with the medication.

Injection sites



Open source image from
https://opentextbc.ca/clinicalskills/chapter/6-7-intradermal-subcutaneous-and-intramuscular-injections/

It is important to **rotate injection sites** around abdomen to prevent build up/reaction. This means changing where you inject each time. **Insulin is absorbed best in the abdomen**. You may use the entire abdomen including your sides. Do not inject within an inch of your belly button.

Needle Disposal: Used needles should be placed in a hard plastic container (ex. Detergent jug), or metal container (ex. empty coffee can). The container should be sealed and labeled **"Sharps"** before throwing away in regular trash.

Using Aspart/Lispro, Regular, or NPH alone

1. Wash Hands

2. Roll bottle if using NPH (cloudy).

3. Wipe top of bottle with alcohol.

4. Put _____ units of air into syringe.

5. Inject air into bottle

6. Remove _____ units of insulin from bottle.

7. Clean injection site with alcohol swab.

8. Pinch skin, and inject the insulin.

Mixing NPH and Regular insulin (if instructed)

1. Wash your hands.

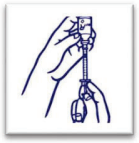
2. Roll NPH bottle (cloudy) in hands.

3. Clean top of both bottles with alcohol.

4. Put _____ (NPH) (cloudy) units of air into syringe.

5. Inject air from syringe into the NPH (cloudy) bottle but do not remove insulin. Remove syringe from bottle.

6. Put ____(Regular) units into syringe. Inject air into regular insulin bottle (clear). Keep Syringe in bottle.



7. Flip bottle over and remove _____ units of regular insulin (clear). Remove syringe from bottle.

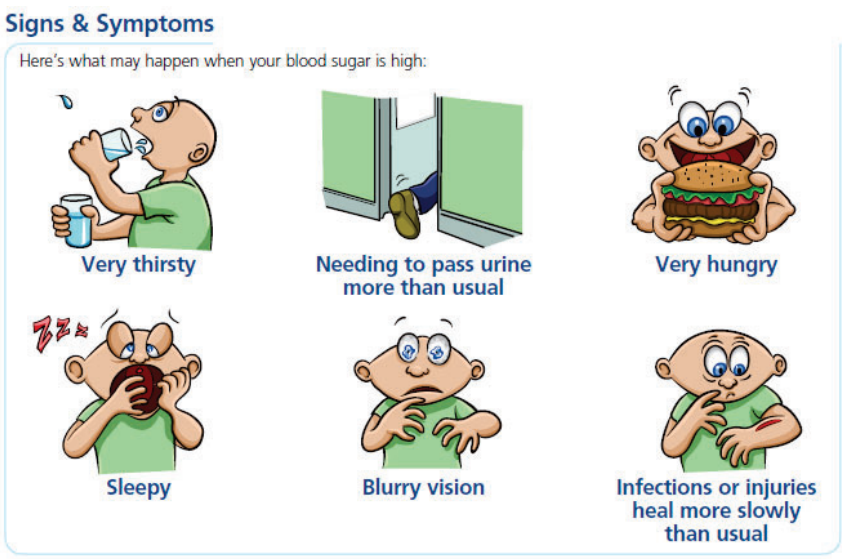
8. Insert same syringe back into NPH (cloudy) bottle and remove ____ units, being careful not to inject clear into the cloudy bottle. so it measures a total of _____ (Regular +NPH) units. Then remove syringe from bottle.

9. Clean injection site with alcohol swab.

10. Pinch skin, and inject the insulin.

11. In 30 minutes, eat breakfast.

Hyperglycemia (High Blood Sugar)

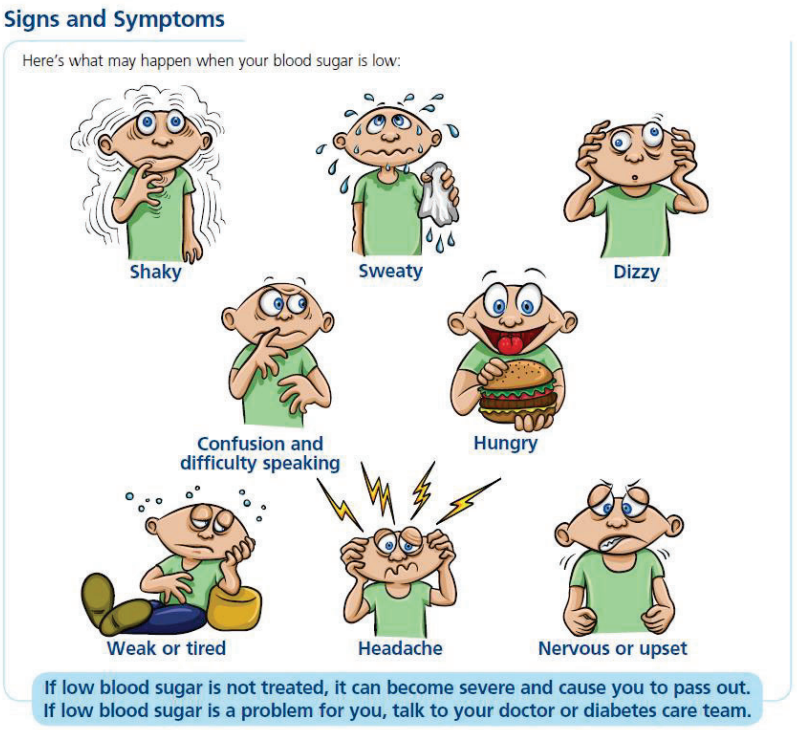


What should I do if my blood sugar is high?

If your fasting blood glucose is more than 126 or more 2 days, call the clinic. Leave a message for the OB high risk nurse for blood glucose levels at any time *200 or more 2 days*. Your call will be returned by the next business day.

If blood sugar is *EVER 250 or MORE*, call the urgent OB advice line.

Hypoglycemia (Low Blood Sugar)



Treatment

If your blood sugar is **less than 60** eat 7 lifesavers or 1 tablespoon of honey or drink half a glass of juice, 4oz of soda, or 8oz of skim milk. **Re-check in 15 min**. If it is still less than 60, repeat until it comes above 60. If it takes more than 3 tries, eat a meal and **call** the high risk OB nurse advice line or on-call provider.

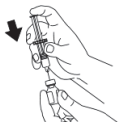
If left untreated, low blood sugar can cause you to become unconscious. If this occurs it is an *emergency* and someone must give you an injection of glucagon and call 911.

Glucagon

Used with permission from Eli Lilly Company

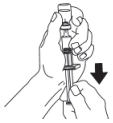
1. Flip off the seal from the vial of Glucagon powder.

2. Remove the needle cover from the syringe. **DO NOT REMOVE THE PLASTIC CLIP FROM THE SYRINGE**.

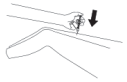


3. Insert the needle into the vial and inject the entire contents of the syringe into the vial of Glucagon powder.

4. Remove the syringe from the vial, then gently swirl the vial until the liquid becomes clear. Glucagon should not be used unless the solution is clear and of a water-like consistency.



5. Insert the same syringe into the vial, turn the vial upside down, and slowly withdraw all of the liquid. Use Glucagon immediately after mixing.



6. Cleanse site on buttock, arm, or thigh with an alcohol swab, inject Glucagon, then withdraw the needle. Apply light pressure against the injection site.

7. Turn the person on her side. When the unconscious person awakens, she may vomit.

Call 911 immediately after administering Glucagon.

As soon as the person is awake and able to swallow, give her a fast-acting source of sugar (such as fruit juice), followed by a snack or meal containing both protein and carbohydrates (such as cheese and crackers, or a peanut butter sandwich).

8. Discard any unused Glucagon.

Notify your healthcare provider that an episode of severe hypoglycemia has occurred.

Exercise

Exercise can help keep your blood sugar stable. Exercise also helps to lower your blood sugar when it is running high. All pregnant women should try to have regular physical activity. Talk with your provider about what exercise might be good for you to try.

- Try for at least 30 minutes of exercise each day.
- Check blood sugar prior to exercising.
- **Bring a snack** in case of hypoglycemia (low blood sugar).

Ideas for exercise

Go for a walk

Dance

Take the stairs

KEEP CARD WITH WALLET OR IDENTIFICATION

MEDICAL ALERT

American Diabetes Association.

Medical and Contact Information

My Name:

I have: ☐ Type 1 ☐ Type 2 ☐ Gestational Diabetes

I take the following diabetes medications:

Insulin:

Other:

After stabilizing me, please call my emergency contact:

Phone: ( )

My diabetes health care provider:

Phone: ( )

Emergency Treatment of Low Blood Sugar

- To treat low blood sugar, I need to eat or drink something containing sugar, such as:
  - ½ can full-sugar soda
  - ½ cup regular fruit juice
  - 3–4 glucose tablets
- Stay with me as I rest, and continue to test my blood sugar level until I recover.
- If I am unconscious, never force me to swallow. *Seek medical attention immediately.*

fold 1

Very Low Blood Sugar

▸ **I have diabetes.** At times I may experience life-threatening severe hypoglycemia (very low blood glucose, very low blood sugar).

▸ **Signs, which can be mistaken for drug or alcohol intoxication, may include** staggering and poor coordination, changes in personality (irritable, angry, combative), slurred speech, poor concentration, bizarre behavior and confusion, sudden hunger, excessive sweating, and unconsciousness and seizures.

▸ **To treat it, see other side.**

Very High Blood Sugar

▸ **I have diabetes.** At times I may experience life-threatening severe hyperglycemia (very high blood glucose, very high blood sugar).

▸ **Signs, which can be mistaken for drug or alcohol intoxication, may include** drowsiness, confusion, extreme thirst, very frequent urination, flushed skin, blurred vision, nausea, vomiting, and a fruity breath odor (may be mistaken for alcohol).

▸ **To treat it,** I may need to test my blood glucose, drink water, have immediate access to a bathroom, and take my insulin. If left untreated, severe hyperglycemia can lead to coma and death.

fold 2

EXTRA CARD

Emergency Treatment of Low Blood Sugar

- To treat low blood sugar, I need to eat or drink something containing sugar, such as:
  - ½ can full-sugar soda
  - ½ cup regular fruit juice
  - 3–4 glucose tablets
- Stay with me as I rest, and continue to test my blood sugar level until I recover.
- If I am unconscious, never force me to swallow. *Seek medical attention immediately.*

Phone: ( )

My diabetes health care provider:

Phone: ( )

After stabilizing me, please call my emergency contact:

Other:

Insulin:

I take the following diabetes medications:

I have: ☐ Type 1 ☐ Type 2 ☐ Gestational Diabetes

My Name:

Medical and Contact Information

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American Diabetes Association.

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fold 2

Emergency Treatment of Low Blood Sugar

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  - ½ can full-sugar soda
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I take the following diabetes medications:

I have: ☐ Type 1 ☐ Type 2 ☐ Gestational Diabetes

My Name:

Medical and Contact Information

MEDICAL ALERT

American Diabetes Association.

KEEP CARD WITH WALLET OR IDENTIFICATION

Insulin Log (Regular/NPH)

You can use this log to help keep track of any changes your provider makes to your insulin dose.

Date	Morning Dose	Dinner Dose	Bedtime Dose
	Regular _____ NPH_____ Total_____	Regular _____	NPH_____
	Regular _____ NPH_____ Total_____	Regular _____	NPH_____
	Regular _____ NPH_____ Total_____	Regular _____	NPH_____
	Regular _____ NPH_____ Total_____	Regular _____	NPH_____
	Regular _____ NPH_____ Total_____	Regular _____	NPH_____
	Regular _____ NPH_____ Total_____	Regular _____	NPH_____
	Regular _____ NPH_____ Total_____	Regular _____	NPH_____

Perforation

Insulin Log (Aspart/Lispro/NPH)

You can use this log to help keep track of any changes your provider makes to your insulin dose.

Date	Morning Dose	Lunch Dose	Dinner Dose	Bedtime Dose
	Aspart/lispro_______ NPH_______	Aspart/lispro_______	Aspart/lispro_______	NPH_______
	Aspart/lispro_______ NPH_______	Aspart/lispro_______	Aspart/lispro_______	NPH_______
	Aspart/lispro_______ NPH_______	Aspart/lispro_______	Aspart/lispro_______	NPH_______
	Aspart/lispro_______ NPH_______	Aspart/lispro_______	Aspart/lispro_______	NPH_______
	Aspart/lispro_______ NPH_______	Aspart/lispro_______	Aspart/lispro_______	NPH_______
	Aspart/lispro_______ NPH_______	Aspart/lispro_______	Aspart/lispro_______	NPH_______
	Aspart/lispro_______ NPH_______	Aspart/lispro_______	Aspart/lispro_______	NPH_______

Perforation

Practice: How many units are there?

1. 

_____

2. 

_____

3. 

_____

Answers: 1) 25 2)12 3)27

Contact Information

UNC OBGYN Main Campus Clinic

Urgent nurse advice: 984-974-2131

Non-urgent voicemail for high risk OB nurse: 984-974-8183

On call OB pager for urgent afterhours needs:
919-216-2864

UNC Maternal Fetal Medicine at Raleigh

Scheduling: 919-784-6425

Nurse Advice Line: 984-215-3781

On call OB pager for urgent afterhours needs:

919-216-2864

UNC Maternal Fetal Medicine at Vilcom Center

Scheduling: 984-215-5000

Nurse Advice Line: 984-215-5001

On call OB pager for urgent afterhours needs:

919-216-2864

Resources

https://www.bd.com/resource.aspx?IDX=4080

https://www.bd.com/resource.aspx?IDX=4099

http://www.diabetes.org/diabetes-basics/gestational/

http://www.diabetesforecast.org/2014/Jan/diabetes-alert-card.pdf

https://www.lillyglucagon.com/taking-glucagon/glucagon-kit-expiration-date

https://www.uncmedicalcenter.org/uncmc/health-library/document-viewer/?id=tp17124

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This book was created August 2019 by Amy Gartner RNC, BSN