



Diabetes and Insulin Injections

Your Kaiser Permanente Care Instructions

What is Diabetes?

Diabetes touches almost every part of your life. It is a serious lifelong condition. You can take charge of your health – not only for today, but for the rest of your life.

Most of the food we eat is turned into glucose (sugar) for our bodies to use as energy. The pancreas, an organ near the stomach, makes a hormone called insulin, which helps glucose get into our body cells. **When you have diabetes, your body either doesn't make enough insulin or can't use its own insulin very well.** This problem causes glucose to build up in your blood.

Balance is the key word for living with diabetes. Strive for balance in all parts of your life. You need to balance your food intake, exercise and medication. With support of your family, friends and Health Care Team, you can take charge of your diabetes.

(Hawaii State Department of Health, Diabetes Control Program; "Take Charge of Your Diabetes")

How to Inject Insulin



1. Get together your insulin, insulin syringe, and alcohol swab.



2. Wash hands with soap and water.



3. Turn the bottle on its side and gently roll 24 times between hands until insulin is cloudy.



4. Clean the top of the bottle with an alcohol swab.



5. Draw air into the syringe, the same amount as the insulin you are to take.



6. Put the needle through the rubber top. Push the plunger down to inject air into the bottle.



7. Turn the bottle upside down and pull the plunger down to fill the syringe. Line up the top of the plunger with your dosage number.



8. Check for large air bubbles in syringe. If present, forcefully push all of the insulin back into the bottle. Withdraw exact dosage again.



9. Take the needle out of the bottle. Cover the needle with a cap and set down.

How to Inject Insulin (continued)



10. Choose injection site. Clean skin with an alcohol swab and allow to dry. Pick up syringe and take the cap off the needle. Gently pinch up a large mound of skin.



11. Hold the syringe firmly like a dart. Quickly insert the entire needle straight into the skin using a 90 degree angle. Push the plunger down slow and steady to inject the insulin.



12. Take out the needle and cover the injection site with the alcohol swab. Press gently for a few seconds.



13. Dispose the needle and syringe in a Kaiser Permanente needle container. Never reuse a syringe.

Notes:

Name of Insulin(s):

Current dosage:

Peak action and duration:

Store all insulin in refrigerator; good for only 30 days once opened.

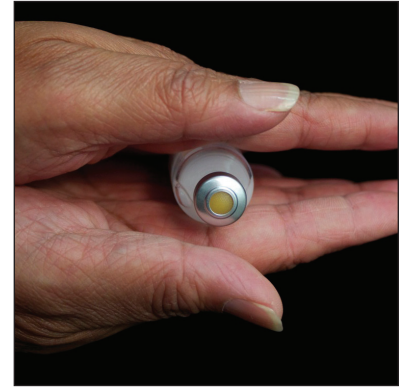
How to Mix Two Insulins in a Syringe



1. Get together your insulin, insulin syringe, and alcohol swab.



2. Wash hands with soap and water.



3. Turn the bottle on its side and gently roll 24 times between hands until insulin is cloudy.



4. Wipe the tops of both bottles of insulin.



5. Put: _____ units of air into bottle of N (cloudy) insulin and TAKE THE NEEDLE OUT.



6. Put _____ units of air into the bottle of _____ (clear) insulin and withdraw _____ units into syringe and TAKE THE NEEDLE OUT.



7. Now, put the needle back in the N (cloudy) insulin. Turn the bottle upside down and pull the plunger down slowly. Stop when you reach a total of _____ units. TAKE THE NEEDLE OUT and cover it with the cap.

Important

- **Never** push the plunger up as this will push the clear insulin into the bottle of the cloudy insulin.
- If you happen to go past your dose of 1 or 2 units, take the needle out of the bottle and carefully waste the 1 or 2 extra units into the sink.

How to Mix Two Insulins in a Syringe (continued)



8. Choose injection site. Clean skin with an alcohol swab and allow to dry. Pick up syringe and take the cap off the needle. Gently pinch up a large mound of skin.



9. Hold the syringe firmly like a dart. Quickly insert the entire needle straight into the skin using a 90 degree angle. Push the plunger down slow and steady to inject the insulin.



10. Take out the needle and cover the injection site with the alcohol swab. Press gently for a few seconds.



11. Dispose the needle and syringe in a Kaiser Permanente needle container. Never reuse a syringe.

Notes:

Name of Insulin(s):

Current dosage:

Peak action and duration:

Store all insulin in refrigerator; good for only 30 days once opened.

	AM Units	PM Units
Clear Insulin (NovoLog® or R)		
Cloudy Insulin (N)		
Total units in syringe		

Where to inject your insulin

Insulin is injected into the fatty areas on the body, away from bones, large blood vessels and nerves. These areas are divided into injection "sites."

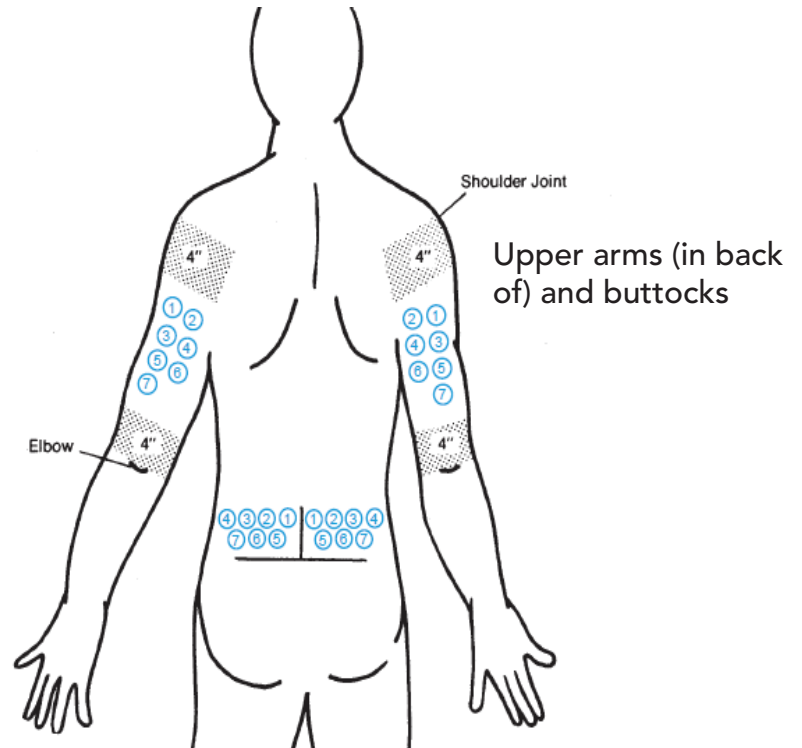
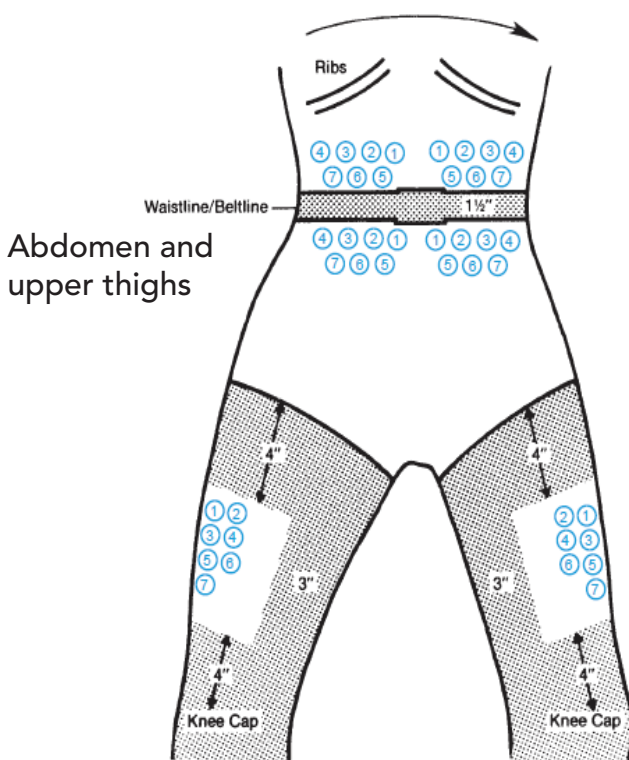
Injection sites change with each injection. Changing sites gives the skin time to heal and prevents skin problems that can occur when sites are not changed.

Injection sites are spaced about 1 inch apart.

You may choose sites that are easy for you to see and reach. The abdomen and thighs are usually used, but you can also use the backs of the upper arms and the buttocks.



Injection sites (Do not inject shaded areas)



What is Hypoglycemia?

(Blood sugar below 70)

Hypoglycemia means that your blood sugar is low and your body is not getting enough fuel. Some people get low blood sugar from taking too much insulin or diabetes medicines, vomiting, diarrhea, eating too little food, skipping a meal, delaying a meal or extra exercise.

People with pancreas problems or who have had surgery on their stomachs or intestines may get hypoglycemia.

Hypoglycemia is defined as a blood sugar level below 70 mg/dl. Appropriate treatment is needed right away or you may pass out.

How can I care for myself?

- Learn to recognize the early signs of low blood sugar. Signs include:

Fast heartbeat
Sweating
Nervousness
Dizziness
Hunger
Nausea

Shakiness
Impaired vision
Weakness/fatigue
Confusion
Irritability
Cold, wet skin

- **If you feel an episode of low blood sugar coming on:**

1. Test your blood sugar with your meter (if possible).
2. If your blood sugar is less than 70 mg/dl, drink ½ cup fruit juice or sugared (not diet) soda, 1 cup milk, or eat 4 glucose tablets.
3. Retest your blood sugar level in 15 minutes and if it is still below 70 mg/dl, then repeat step 2.
4. Within 30 minutes after symptoms go away, eat a small snack such as a half sandwich and a cup of milk.

- Keep a written record of your low blood sugar episodes, including when you last ate and what you ate, so that you can learn what causes your blood sugar to drop. Call your health care provider to report your reaction.
- **Make sure your family, friends, and coworkers know the symptoms of low blood sugar and know what to do to get your sugar level up.**

How can I prevent Hypoglycemia?

1. Avoid skipping meals. Eat on time.
2. Balance extra exercise with adjusting your food intake or medicine.
3. Carry sugar or glucose tablets at all times in a pocket or purse.
4. Carry a diabetes identification card or wear a “medic alert” bracelet. Ask your doctor or nurse if you need a “medic alert” bracelet.
5. As a precaution, check your blood sugar levels before driving and exercise, and eat a snack if your blood sugar is below 100.



What is Hyperglycemia? (High Blood Sugar)

Hyperglycemia means that your blood sugar is high. Diabetes ketoacidosis (DKA) can occur if you have little or no insulin in your body and your blood sugar level gets too high. This can happen when you forget to take your insulin or diabetes medicines, do not take enough insulin or medicine, when you have an infection or another illness (such as the flu), ate too much food (especially sweet foods), or when you are severely dehydrated. DKA occurs mostly in people with type 1 diabetes, but people with type 2 diabetes also can get it. DKA can only be treated with insulin and fluids, which often are given in a vein (IV).

How can I care for myself?

Learn to recognize the early signs of high blood sugar. Signs include:

Extreme thirst
Frequent urination
Dry skin
Hunger

Weight loss
Blurred vision
Drowsiness
Nausea



To avoid spikes in your blood sugar and reduce your chance of ketoacidosis:

- Take your insulin and other diabetes medicines **on time and in the right dose.**
- If an infection caused your DKA and your doctor prescribed antibiotics, take them as directed. Do not stop taking them just because you feel better. **You need to take the full course of antibiotics.**
- Drink plenty of sugar-free liquids, especially if your blood sugar level is above 200 milligrams per deciliter (mg/dL).
- **Test your blood sugar** before meals and at bedtime or as often as your doctor advises. This is the best way to know when your blood sugar is high so you can treat it early. Watching for symptoms is not as helpful because they may not appear or you may not notice them until your blood sugar is very high.
- **Teach others at work and at home how to check your blood sugar.** Make sure that someone else knows how to check your blood sugar in case you are not able to check it yourself.
- Wear or carry **medical identification** at all times. This is very important in case you are too sick or injured to speak for yourself.
- Talk to your doctor about when you can start exercising again.
- **Eat regular meals** that spread your calories and carbohydrate throughout the day. This will help keep your blood sugar steady.

When you are sick:

- **Keep taking your insulin and diabetes medicines**, even if you are vomiting and having trouble eating or drinking. Your blood sugar may keep rising because you are sick. But it may be important to change your dose of insulin if you are eating fewer calories than normal. Talk with your doctor about a plan when you are well so you will know what to do when you are sick.
- **Drink extra fluids**, such as water, broth, and caffeine-free, sugar-free drinks to prevent dehydration.
- **Try to eat your normal types and amounts of food.**
- **Check your blood sugar at least every 3 to 4 hours or more often if it is rising fast.** If your blood sugar level rises above 250 mg/dL and your doctor has told you to take an extra insulin dose for high blood sugar levels, take the right amount. If you take insulin and your doctor has not told you how much to take for high blood sugar levels, call him or her for advice.
- **Check your temperature and pulse often** if your blood sugar is over 300 mg/dL. If your temperature is going up, call your doctor. You may be getting worse.

If you know your blood sugar is high, treat it before it gets worse.

- **If you have missed your usual dose** of insulin or other diabetes medicine, take the missed dose or take the amount your doctor has told you to take if this happens.
- If you and your doctor have decided on a dose of extra-fast-acting insulin based on your blood sugar level, give yourself the right dose. If you take insulin and your doctor has not told you how much fast-acting insulin to take based on your blood sugar level, call him or her for advice.
- Drink extra water or caffeine-free, sugar-free drinks to prevent dehydration.
- Wait 30 minutes after taking extra insulin or your missed medicines. Then check your blood sugar again.
- If symptoms of high blood sugar get worse or your blood sugar level keeps rising, call your doctor. If you start to feel drowsy or confused, call 911.

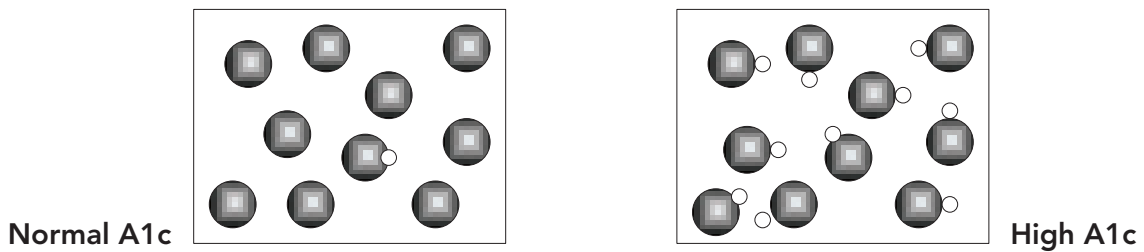


Blood Sugar Targets for People with Diabetes

Talk with your health care team about your personal targets.

	Fasting and Pre-Meal	2 hours After Start of Meal	Pre-Bedtime	A1c
Normal	70 - 99mg %	80 - 120 mg %	below 120 mg %	Under 5.7%
Target	70 - 130 mg %	Below 180 mg %	110 - 150 mg %	Under 7.0%

The A1c test measures the amount of sugar that attaches to the red blood cell. Because red blood cells live for about three months, A1c tests show your average blood sugar during that time.



Here's a chart you may use as a guide. Kaiser Permanente Hawaii's A1c normal range is from 4.3% to 5.6%.

A1c	Average Blood Sugar
5%	97 (76 - 120)
6%	126 (100 - 152)
7%	154 (123 - 185)
8%	183 (147 - 217)
9%	212 (170 - 249)
10%	240 (193 - 282)
11%	269 (217 - 314)
12%	298 (240 - 347)

When should 911 be called?

- Call 911 anytime you think you may need emergency care. For example, call if:
 - You have a seizure.
 - You pass out (lose consciousness).
 - You have symptoms of low blood sugar that do not get better after you eat or drink something with sugar in it.
 - You feel confused or have trouble thinking.
 - You start to feel like you did during a previous episode of DKA. Symptoms may include:
 - Flushed, hot, dry skin.
 - Blurred vision.
 - Drowsiness.
 - Fast, deep breathing.
 - Fruity breath odor.
 - Belly pain, loss of appetite, and vomiting.
 - Confusion

When should I call Kaiser Permanente?

- Your vision gets blurry, you feel dizzy, or you get a headache.
- You feel weak or drowsy.
- You have trouble standing, walking, or talking.
- Your symptoms continue or return.
- You have a lot of problems with high or low blood sugar levels. Your insulin or other medicine may need to be changed.
- You have trouble keeping your blood sugar in a safe range.

How can I learn more?

- Contact your doctor.
- Log on: members.kp.org. Search for [Diabetes](#).



Notes:

Important Phone Numbers

After Hours Advice Nurse:

Oahu 808-432-7700

Neighbor Islands 1-800-467-3011

Follow-up care is a key part of your treatment. Be sure to make any suggested appointments and go to all scheduled visits. Watch for signs that indicate you are having problems, and call your doctor or other clinician if you have concerns. It is also a good idea to know your test results and keep a list of medicines you take. For more information about hypoglycemia or hyperglycemia, classes, and on-line resources, please speak to your doctor.

This information is not intended to diagnose health problems or to take the place of medical advice or care you receive from your physician or other health care professional. If you have persistent health problems, or if you have additional questions, please consult your doctor. If you have questions or need more information about your medication, please speak to your pharmacist. Kaiser Permanente does not endorse any brand names; any similar products may be used.

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