

- **The word “insulin” brings up a lot of different feelings for people.**
- **These are some of the common feelings patients have.**

QUESTIONS FOR DISCUSSION:

What have you heard about insulin? Do you know people who take insulin?

What worries or questions do you have about insulin?

TEACHING TIPS:

Acknowledge worries, normalize concerns, address misconceptions.

Patients often have negative perceptions of diabetes in general and insulin specifically that they’ve heard from friends, family, media.

Be positive. Show support and empathy for the patient.



PATIENT CONCERN	PROVIDER RESPONSE
“I’m afraid of needles.”	Giving an injection hurts much less than checking your blood sugar. Shorter needles are available to make injections almost painless. Injections only enter fat tissue, not blood vessels or muscle.
“If I start insulin, I’ll never be able to stop.”	Everyone is different. Sometimes people can use insulin temporarily. Most people need insulin long-term because the body makes less and less insulin over time. If your body is not making enough insulin, it will help to try insulin injections.
“I didn’t follow my diet and exercise.”	You didn’t fail. When you have diabetes your body is not producing enough insulin like it used to.
“I feel fine. I don’t need insulin.”	You might feel OK but it is the high blood sugars that damage the body over time, not insulin. That’s why it’s important to look at your blood sugar levels and your A1C.
“My life is going to change completely.”	Insulin can help control your blood sugars but doesn’t have to change your life completely. Most people start with one insulin injection a day. You can do more when you’re ready.
“Insulin will make my blood sugar to go too low.”	Blood sugars that are too low or too high aren’t good for you. You can learn to use insulin safely and correctly.
“Injections are inconvenient. I cannot do injections at work.”	Most people start with insulin at bedtime. It only takes a few minutes. Later, some people need injections before meals. The law in the U.S. protects your right to take care of your diabetes at work. Employers cannot discriminate against you just because you have diabetes.

- **You're not alone.**
- **It's normal to have worries about insulin in the beginning.**
- **Many people who use insulin say that they feel better and their blood sugars get better.**
- **We're here to help you learn to do it right.**
- **Using insulin takes less than a few minutes.**

QUESTIONS FOR DISCUSSION:

How might insulin help you?

Are you ready to learn more about insulin now?

TEACHING TIPS:

Psychological barriers are a large part of patient resistance to starting insulin.

Summarize what the patient says about the benefits of starting insulin vs. fears/worries about insulin.

Do the benefits outweigh the fears?



- **Controlling your blood sugars depends on a balance of healthy eating, being active and taking medications.**
- **You've already done your best with eating and staying active.**
- **Most people also need pills and insulin to control their diabetes.**

QUESTIONS FOR DISCUSSION:

How are you staying active?

How can you maintain a healthy diet at home and when eating out?

TEACHING TIPS:

Patients often blame themselves for "not doing enough" with diet and exercise and taking their pills.

It's important to reinforce to the patient that he/she hasn't failed.

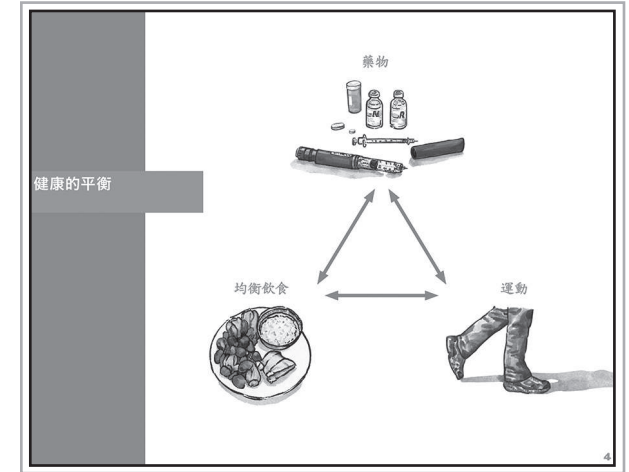
Some patients may have underlying beliefs against and mistrust of medications.

This may be related to actual/perceived side effects of medications, negative experiences of friends/family members, cultural beliefs, perceptions that Western medications are not "natural", cost of medications, denial that one has a chronic illness, fear of drug-drug interactions.

Resistance to taking medications is important to address up-front.

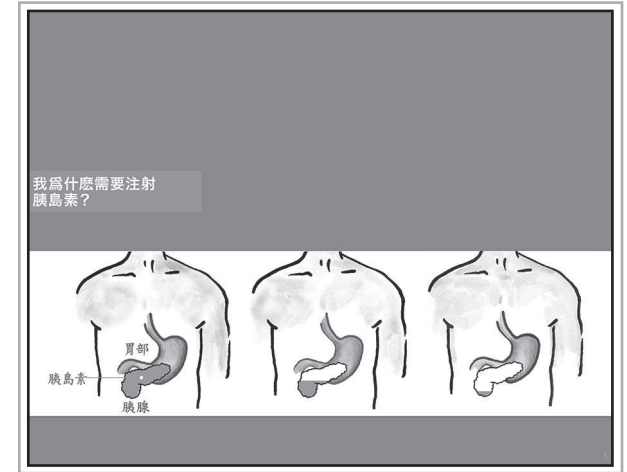
Emphasize that safe and correct use of medications can help control blood sugars.

Emphasize insulin is natural.



PATIENT CONCERN	PROVIDER RESPONSE
<p>"Let me work on my diet and exercise more before starting insulin."</p>	<p>Eating healthy and being active are always important. Starting insulin now will help because your blood sugars are high. You can always use less insulin later as your blood sugars come down.</p>
<p>"My doctor told me if I didn't do better, I would have to start insulin."</p>	<p>It's not your fault. Even if you do the perfect diet and exercise, your body makes less insulin over time. It's normal to have to adjust medications as diabetes progresses. Eating healthy and staying active are always important. If your body isn't making enough insulin, insulin injections can help.</p>
<p>"I have to eat rice to have strength. If I don't eat rice, I have no energy and feel weak."</p>	<p>Rice can be a part of a healthy diet when you have diabetes, but eating too much will affect your blood sugars. To prevent the blood sugars from being too high, it is important to eat some rice but not too much. (See p. 15)</p>

- **The pancreas naturally makes enough insulin to keep blood sugars normal. With diabetes, your pancreas makes less and less insulin, so your blood sugars go up.**
- **Injecting insulin replaces the natural insulin that is missing. When sugar stays in your blood, you can't use it for energy. Insulin takes the sugar out of the blood and into your body so you have energy.**



QUESTIONS FOR DISCUSSION:

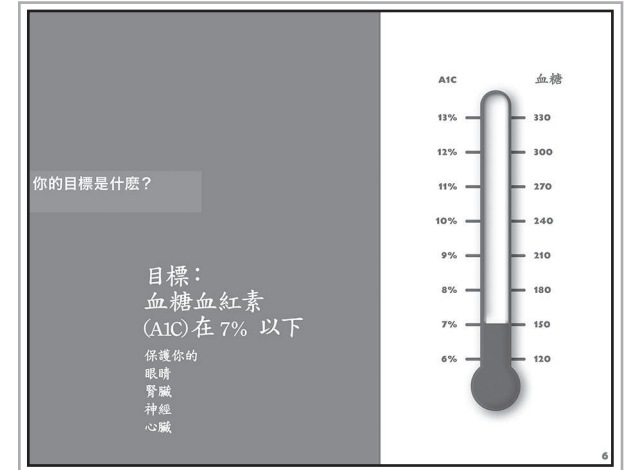
- What is the difference in these three pictures of the pancreas? (amount of insulin decreases)
- How can you tell if your pancreas is still making enough insulin? (by your blood sugar level)
- How can insulin help you?

TEACHING TIPS:

- Diabetes is chronic. Over time there is usually a progressive loss of insulin production despite healthy diet and exercise. This happens to everyone. In some people, this happens quickly, in others it happens more slowly. How quickly or slowly this happens depends on a combination of genetics and lifestyle.
- Don't use starting insulin as a threat.
- Some patients may understand the need for insulin with an analogy to a battery or gas tank that is running low.

PATIENT CONCERN	PROVIDER RESPONSE
"Is there an insulin pill?"	Insulin is only available as injections. Insulin is not made as pills because it would be destroyed by stomach acid. If you take pills like glipizide or glyburide, these medications tell your pancreas to make more insulin. Without enough insulin left in your pancreas, these pills won't work anymore.
"It's not natural to take insulin."	In fact, insulin is a natural part of our bodies. Insulin has been available since the 1920s, and has been life-saving for people with diabetes.
"If I lose weight I might not need insulin."	It's true that being overweight makes your body "resistant" to insulin. The good news is that losing even 7% of your body weight can help. However, your body still might not be making enough insulin. Giving insulin injections can help if your body just needs more insulin.
"Insulin will harm me."	Insulin is safe when used correctly. Children, pregnant women and adults can all use insulin. It's actually the high blood sugars that harm the body.

- **The “A1C” blood test is a way to show your average blood sugars over the last 3 months.**
- **Studies show that for most people, keeping the A1C level under 7% is best to protect the eyes, kidneys, nerves and heart.**
- **If you already have these problems, controlling your blood sugars may prevent them from getting worse.**



QUESTIONS FOR DISCUSSION:

- Do you want to know your numbers? (*Have patient's A1C level ready*)
- Where do you want to be?
- Why is this important to you?
- Let's talk about how to get there.

TEACHING TIPS:

- Focus on patient's motivation to be healthy and avoid complications.
- If the A1C is high, the patient is generally experiencing high blood sugars throughout the day, even if they have a few blood sugars that are lower.
- A patient's A1C goal should be individualized. For some patients, particularly frail or elderly patients with multiple cardiovascular risk factors or life expectancy < 5 years, a higher A1C may be appropriate. For patients who are younger, without multiple co-morbidities or are preconception, a lower A1C may be appropriate.

PATIENT CONCERN	PROVIDER RESPONSE
"My A1C is high but I feel fine. I don't feel sick."	Diabetes is tricky. You might feel okay but high blood sugar levels can quietly cause damage in your body over time. That's why it's important to look at your blood sugar levels and A1C.
"My morning sugars are fine."	It's great you're checking your sugars in the morning. But if your A1C number is high, it means that there are other times during the day when your sugar is higher. Testing before or 2 hours after other meals can tell which medications will work best for you.

- **Using insulin is a new skill.**
- **It's normal to feel nervous.**
- **Most people who give themselves an injection for the first time say there's no pain.**
- **Try a practice shot so you can see for yourself.**

QUESTIONS FOR DISCUSSION:

(when the needle is inserted fully) How do you feel...does that hurt?

(have patient pause to recognize the moment of no pain)

TEACHING TIPS:

Have syringe and sharps container available for practice.

Be positive. Don't rush. For the very nervous patient, modeling by the provider first or starting with injecting the back of the arm rather than the abdomen may help.

Support the patient for overcoming their fears and doing a practice injection.

Providers/educators: Be aware of your own fears of self-injection.

Practice doing a dry injection yourself.

STEPS FOR PRACTICE INJECTION:

1. Give the patient the option to choose the site to try the practice injection.
2. Remove the cover of the needle.
3. Hold the syringe like a pen.
4. Put the needle straight in all the way and hold for 6 seconds.
5. Pull the syringe out and throw it away in the sharps container.

Congratulations!



- **Learning to draw up insulin is a new skill and takes time to learn.**
- **Once you get comfortable, it should take less than a few minutes to do all these steps.**

QUESTIONS FOR DISCUSSION:

Let's look at a typical insulin syringe. The black top of the plunger should line up with the amount of insulin you want to draw up. This is where 10 units is.

(Tip: pull the plunger out of the syringe completely and touch or point to the top of the plunger to show that this is the part that lines up with the dose of insulin.)

Ensure patient can correctly read small lines on the syringe that are not marked by a number.

Can you show me where 25 units is?

7 units?

19 units?

46 units?

Now we'll practice the steps of how to draw up insulin.

TEACHING TIPS:

Have real syringes and vials for patients to practice on.

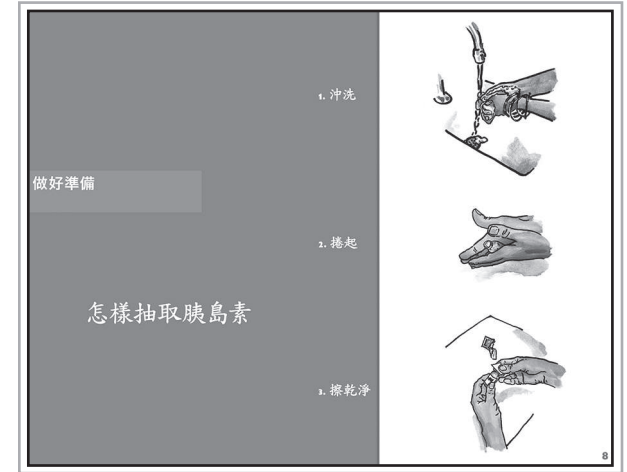
Assess patient for the motor/visual and numeracy skills to use vial and syringe accurately, especially for doses that are not factors of 5 or 10.

Otherwise, assess patient's ability to use insulin pens. Some insulin pens for some insurances require PA or TAR.

(Note any motor/visual problems in PA/TAR for justification).

"Roll" step is only necessary for NPH insulin or premix insulin.

Use the smallest syringe appropriate for the dose the patient will be using.



FOR DOSES UP TO...	USE THIS SIZE SYRINGE	PREFERRED NEEDLE LENGTHS
30 units	1/3 mL	5/16" / 8 mm (short)
50 units	1/2 mL	5/16" / 8 mm (short)
100 units	1 mL	5/16" / 8 mm (short)

- **Preparing the syringe and injecting may feel awkward at first.**
- **With practice, it becomes easier.**

QUESTIONS FOR DISCUSSION:

Show me from the beginning how you will draw out 12 units of insulin.

(Return demo to assess patient's accuracy)

TEACHING TIPS:

Use back of the arm, thigh or abdomen for long-acting basal insulins.

Use abdomen for mealtime fast-acting insulins or premix insulins.

Rotate site of injections to avoid lipodystrophy that will affect absorption of insulin.

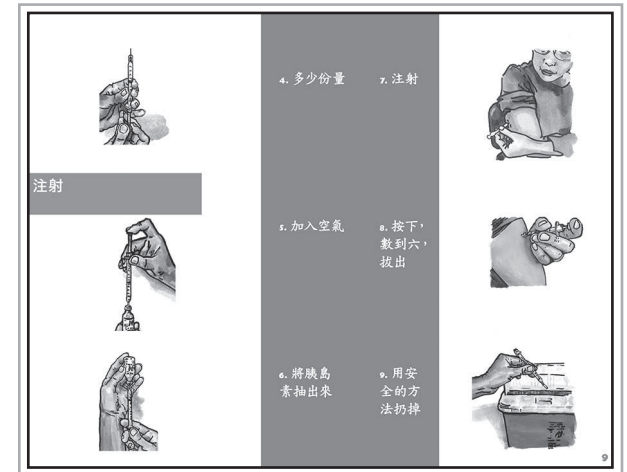
When away from home, anticipate barriers to giving insulin injections and discuss strategies to maintain adherence with insulin regimen.

Tips for storing insulin:

You do NOT have to refrigerate the bottle of insulin you're using. Keep it at room temperature and it's OK for up to one month.

Keep insulin away from sunlight and heat. E.g., keep it in the original box or in a drawer.

Keep extra bottles of insulin that are new and not opened yet in the refrigerator until you need them. Do not freeze insulin.



- **Everyone needs blood sugar for energy. Some blood sugar comes from food. Your liver can also make sugar.**
- **When you have diabetes, your liver might make too much sugar. You may wake up in the morning with a high sugar even though you didn't eat all night long.**
- **Taking long-acting slow insulin at bedtime can improve your blood sugar the next morning by preventing the liver from making too much sugar overnight.**



QUESTIONS FOR DISCUSSION:

What is your morning blood sugar?

What would you like your morning blood sugars to be? (80-130 for most people)

TEACHING TIPS:

Giving a long-acting slow insulin at bedtime controls the morning blood sugars.

Most people need to gradually adjust the dose of the long-acting slow insulin to find the amount that controls the morning blood sugars.

Once the right amount of long-acting slow insulin is discovered, the dose needed is generally kept consistent

and is *not* adjusted on a sliding scale day-to-day depending on the blood sugars.

You don't need a bedtime snack when you give NPH or glargine at bedtime.

(A small bedtime snack is only recommended for dinnertime NPH or dinnertime premix to avoid low blood sugars when it peaks overnight.)

INSULIN TYPE	ONSET	WHEN TO GIVE	PEAK	DURATION
NPH	2-4 hrs	Bedtime only or morning + bedtime	6-10 hrs	14-18 hrs
Glargine (Lantus)	1 hr	Usually once daily, usually at bedtime	None theoretically	11-24+ hrs
NPH/Reg 70/30	½ hr	½ hr before breakfast and dinner	2-12 hrs	up to 24 hrs
Novolog 70/30 Humalog 75/25 or 50/50	10-15 min	10-15 min before breakfast and dinner	1-4 hrs	Up to 18-24 hrs

- **Some diabetes pills and insulin can cause your blood sugar to go too low. You might feel some symptoms.**
- **Or, you might feel fine but your blood sugar is low.**
- **Dangerous low blood sugars under 70 can happen if you skip meals, eat less than usual or exercise without eating enough.**
- **Low blood sugars are not good for your body.**

QUESTIONS FOR DISCUSSION:

Have you ever experienced a low blood sugar?

What did it feel like?

Why do you think it happened?

TEACHING TIPS:

Dispense glucose tabs if needed.

When in doubt or if unable to check blood sugar, treat for a possible low blood sugar anyway.

Discuss how to prevent low blood sugars from happening:

Don't skip meals.

Talk to your provider before starting new/different exercise. Check your blood sugar after exercise to see what effect exercise has.

Try to eat the same size meals day to day.

Assess if low blood sugars are due to taking sulfonylureas or mealtime insulin at the wrong time (i.e., after meals, too long before meals, bedtime)



PATIENT CONCERN	PROVIDER RESPONSE
"I feel better when my blood sugar is higher."	You can start insulin at a low dose to get used to it, then adjust slowly depending on your blood sugars.
"I feel weak even when my sugar is in the 100s."	Sometimes if your blood sugar has been high for a long time, your body feels different when your numbers start coming down. Having a blood sugar in the 100s is not low or dangerous. Your body will gradually feel better when your blood sugars are at a safer, lower level.
"It's worse to have low blood sugars than high blood sugars."	Both low blood sugars and high blood sugars can harm your body. Low blood sugars usually cause symptoms and you feel bad, however high blood sugars quietly harm your body even if you don't feel anything immediately. It's important to avoid both high and low blood sugars.

• **Know how to treat a low blood sugar if it happens to you.**

QUESTIONS FOR DISCUSSION:

How do you treat low blood sugars?

Do you wear a Medic Alert bracelet or tag?

TEACHING TIPS:

Review options for treating low blood sugars.

Always carry something with you to treat low blood sugars.

Eat 15 grams of any carbohydrate if juice, glucose tabs, candy or sugar are not available.

Drinking warm water alone will not raise a low blood sugar.

Retest in 15 minutes. Repeat treatment if still low.

Consider prescribing glucagon if the patient lives with someone who can be trained to administer it in an emergency.

The best strategy is to prevent low blood sugars from occurring in the first place.

Patients who mix NPH with Regular insulin at dinner, or use a premix insulin at dinner, should eat a small snack at bedtime to avoid overnight low blood sugars.



PATIENT CONCERN	PROVIDER RESPONSE
<p>"I'm getting low blood sugars a lot."</p>	<p>Certain diabetes pills and insulin can cause low blood sugars if you take them at the wrong time, or too much. Skipping meals, eating less than usual or exercising more than you're used to can also cause low blood sugars.</p> <p>If you use glipizide, glyburide or Regular insulin, taking it half an hour before meals is best.</p> <p>If you use NPH and have low blood sugars in the middle of the night, take it at bedtime instead of dinnertime.</p> <p>If you use premix insulin, always eat 3 small meals per day plus a small bedtime snack.</p> <p>If you are change how you eat or start a new kind of exercise, your medications may need to be adjusted.</p>
<p>"My blood sugars go up and down."</p>	<p>Sometimes people are so afraid of low blood sugars that they deliberately eat more when they're low, then have high blood sugars afterwards. If this happens often, you may gain weight because of the extra calories.</p> <p>Keep notes about what you eat and when you exercise to figure out why your blood sugars go up and down.</p>

- **You're doing a lot to take care of your diabetes.**
- **Using insulin can be a part of your plan to be healthy.**
- **You don't have to do it alone. We're here to help you.**

QUESTIONS FOR DISCUSSION:

Are you ready to start insulin?

If yes, develop the plan (e.g., type of insulin, starting dose, change in other medications if necessary, when to check blood sugars).

Have patient teach back, set goals and write the plan down.

If no, explore barriers and obstacles again.

Where do you want to be in 1 month? 1 year? 10 years?

Are there other changes you want to make to be healthy?

TEACHING TIPS:

Your blood sugar numbers will tell you if insulin is helping.

After 3 months, you can also check the A1C again to see if the average blood sugar is coming down.

Most people need adjustments to the starting dose of insulin.

You might also start to have more energy and go to the bathroom less.

Develop an action plan with the patient if they choose to make a lifestyle change:

Reduce stress

Be physically active/exercise

Take medications

Stop smoking

Check blood sugars

Eat healthy foods

Learn to problem solve

Make a plan for follow-up.



THIS CONCLUDES THE SECTION ON STARTING BASAL INSULIN.

- **People with diabetes don't need special foods.**
- **Eating healthy portions of food is most important.**
- **Carbohydrates are the sugars and starches in your food that affect your blood sugar the most.**
- **Keep carbohydrate portions consistent at each meal.**

QUESTIONS FOR DISCUSSION:

- Which are the carbohydrates in this picture?
- What do you eat on a typical day? How much?
- What do you usually drink?
- Do you snack? (When? What?)
- When you eat family style, what are some ways you can control the amount of carbohydrates you eat?
- How can your family help you to eat a healthy diet?

TEACHING TIPS:

- Half of what you eat should be non-starchy vegetables.
- Eat lean protein. Keep the portion about the size of your palm.
- Control the portion of starchy foods to about one flat small rice bowl or less.
- Fruit and milk also contain carbohydrates, but these are healthy things to include in moderation.
 - It's OK to eat 2-3 small pieces of fruit everyday, and 2-3 cups of milk per day if you like milk.
- Don't skip meals.
- Drink plenty of water. Diet drinks, tea and coffee are OK.
 - Avoid regular sodas, juices and other sweetened drinks.
- Refer to nutritionist for individualized counseling if patient is ready.



PATIENT CONCERN	PROVIDER RESPONSE
<p>"I eat very little rice. Instead I eat more noodles or oatmeal."</p>	<p>All starchy foods can cause the blood sugar to go up. It's important to control the portions of all starchy foods, not just rice. (See p. 15 for list of other carbohydrates.)</p>

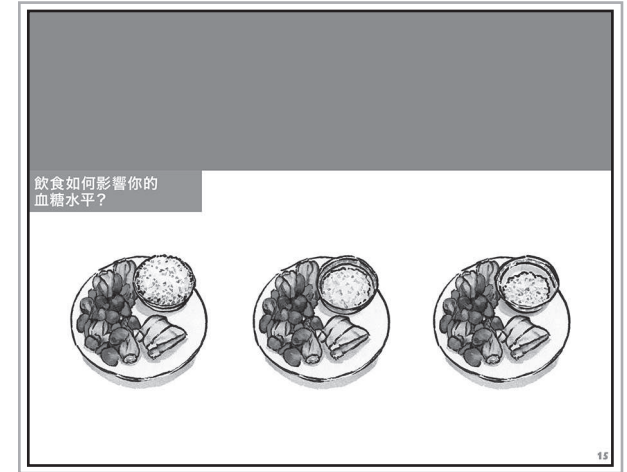
- **Carbohydrates affect your blood sugars the most.**
- **It's important to control portions of carbohydrates.**

QUESTIONS FOR DISCUSSION:

- What is different about these plates?
- Which one is the best example of healthy portions?
- How do you think each plate will affect your blood sugar?

TEACHING TIPS:

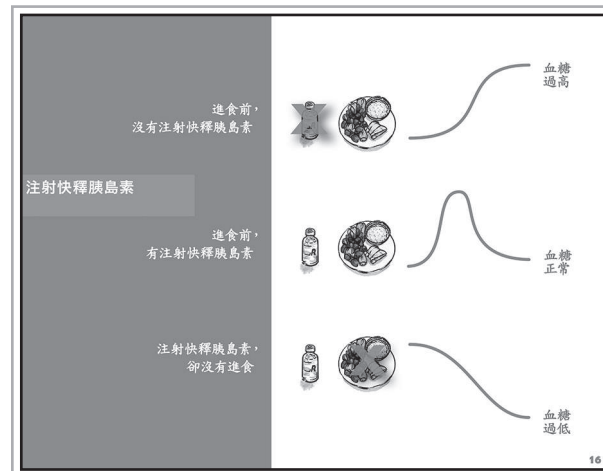
- Do brief diet recall with patient to identify what types of carbohydrates they typically eat and portion size.
- Assess if patient understands what kinds of foods are carbohydrates.
- Encourage limiting carbohydrate portions to a flat rice bowl portion for starters.
- Keep the carbohydrate portions in each meal about the same from day to day (i.e., dinner portions of carbohydrates should be about the same from day to day, even if the type of carbohydrate can vary) unless patient is counting carbohydrates.
- Discuss what types of foods count as carbohydrates:



GRAINS	STARCHY VEGETABLES/FRUIT	DAIRY	SWEETS
Rice (white, brown, congee, sweet/sticky) Noodles (rice, egg, macaroni, bean thread) Bread Wonton, dumplings Oatmeal Chinese buns Crackers	Potatoes Corn Peas Beans (green, black, red) Sweet potato, taro, pumpkin All fruit (fresh or dried)	Milk (evaporated, condensed) Yogurt Ice cream **but not cheese or cottage cheese	Cakes, mooncakes, sweet buns, mochi Cookies Tapioca puddings and drinks Hot sweet soups Red/green bean drinks/soups Regular soda Juice Sweetened drinks (lemon tea, soybean milk, Ovaltine)

OPTIONAL PAGE: MOST PATIENTS START WITH BASAL INSULIN FIRST. ADDITION OF MEALTIME INSULIN IS USUALLY STARTED AFTER BASAL INSULIN.

- **When you eat, your blood sugar goes up. Before you had diabetes, your body naturally made enough insulin to bring the blood sugar back down to normal after eating. Now, your body may not be producing enough insulin naturally when you eat.**
- **You may need a short-acting insulin with meals to bring your blood sugar back to normal.**



QUESTIONS FOR DISCUSSION:

- What are your blood sugars during the day?
- What do you want your blood sugars to be before meals? (80-130 for most people)
- What do you want your blood sugars to be 2 hrs after meals? (under 180 for most people)

TEACHING TIPS:

- First, talk about the middle graphic showing the ideal balance between mealtime insulin and the amount of carbohydrates eaten.
- If mealtime insulin is correctly matched to the amount of carbohydrates in a meal, the highest expected 2 hr postprandial peak blood sugar is under 180.
- Mealtime insulin starts working quickly but only lasts for one meal.
- When starting, mealtime insulin can be given empirically at the largest meal of the day, or the meal whose postprandial sugars are highest, or split among 2-3 meals of the day.
- (Tip: if morning blood sugars are at goal but A1C is still high, patient is likely high other times during the day associated with eating.)

INSULIN TYPE	ONSET	WHEN TO GIVE	PEAK	DURATION
Regular U-100	½-1 hr	½ hr before eating, up to 3x/day	2-3 hrs	6-8 hrs
Aspart (Novolog) or lispro (Humalog)	10-15 min	5-15 min before eating, up to 3x/day	1-3 hrs	3-5 hrs
NPH/Reg 70/30	½ hr	½ hr before breakfast and dinner	2-12 hrs	up to 24 hrs
Novolog 70/300 Humalog 75/25 or 50/50	10-15 min	10-15 min before breakfast and dinner	1-4 hrs	Up to 18-24 hrs

**Thank you to all our patients—
to those who contributed directly in creating this educational tool,
and to those who taught us so much along the way.**

DEVELOPED AND PRODUCED WITH SUPPORT FROM:

San Francisco General Hospital Foundation

San Francisco Health Plan

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