You may use the charts below to help you better understand your diabetes. Ask your healthcare provider to review your goals and targets with you. Discuss the results and set up an action plan of things you can do to stay healthy and learn more about diabetes. Write down the dates when you have the tests or exams done and enter the results where appropriate.

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Date and Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1C (every 3-6 months)</td>
<td></td>
</tr>
<tr>
<td>Goal: less than 7% or ________________</td>
<td></td>
</tr>
<tr>
<td>Blood Pressure (every visit)</td>
<td></td>
</tr>
<tr>
<td>Goal: less than 130/80 or ________________</td>
<td></td>
</tr>
<tr>
<td>Blood Glucose Records (review every visit)</td>
<td></td>
</tr>
<tr>
<td>Cholesterol, LDL (once a year)</td>
<td></td>
</tr>
<tr>
<td>Goal: less than 100 or ________________</td>
<td></td>
</tr>
<tr>
<td>Microalbuminuria (once a year)</td>
<td></td>
</tr>
<tr>
<td>Goal: less than 30 or ________________</td>
<td></td>
</tr>
<tr>
<td>Weight (every visit)</td>
<td></td>
</tr>
<tr>
<td>Goal:__________________</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exams and Vaccinations</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Exam (dilated; once a year)</td>
<td></td>
</tr>
<tr>
<td>Foot Exam (every visit)</td>
<td></td>
</tr>
<tr>
<td>Flu Shot (once a year)</td>
<td></td>
</tr>
<tr>
<td>Pneumonia Vaccine</td>
<td></td>
</tr>
<tr>
<td>Stress Test / EKG</td>
<td></td>
</tr>
</tbody>
</table>

The following are topics that are important to learn about and understand. Place a check mark next to them when you know what to do and have a plan for the following:

- Meal planning
- Sick day care
- Weight loss
- Low blood glucose treatment and prevention
- Physical activity
- Foot care
- Blood glucose monitoring
- Stress management
- Additional diabetes education
- Other:__________________________________________

For more help understanding and managing your diabetes, the following sources of information are available:

**Resources**
- Joslin Diabetes Center Web site and store: www.joslin.org or 1-888-JOSLIN-1
- American Diabetes Association: www.diabetes.org or 1-800-DIABETES (1-800-342-2383)

**Referrals**
- A Registered Dietitian – for meal planning: www.eatright.org or 1-800-877-1600 ext. 5000 (American Dietetic Association)
- A Diabetes Educator – for general diabetes education instruction: www.diabeteseducator.org or 1-800-832-6874 (American Association of Diabetes Educators)
- Diabetes Education Programs “Recognized” by the American Diabetes Association for quality: www.diabetes.org or 1-800-342-2383
Why Should I Monitor?
By checking your blood glucose, you’ll learn how well your diabetes care plan is working and if your blood glucose is in your target range.

How Do I Check?
You can check your blood glucose with a small device called a glucose meter. Your healthcare team will help you learn how to use your meter.

What Should My Blood Glucose Level Be?
Your blood glucose level changes throughout the day. For example, it may be lower before you eat and higher after you eat. Discuss your target glucose range with your healthcare team.

<table>
<thead>
<tr>
<th>Time of Check</th>
<th>Usual Target for Most People</th>
<th>Your Blood Glucose Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before meals</td>
<td>90 - 130</td>
<td></td>
</tr>
<tr>
<td>Two hours after meals</td>
<td>Less than 160</td>
<td></td>
</tr>
<tr>
<td>Bedtime</td>
<td>110 - 150</td>
<td></td>
</tr>
</tbody>
</table>

My Blood Glucose Monitoring Action Plan:

What to do with the results:
- Write them down on a log sheet or in a record book. Bring them with you to your next appointment.
- Look for patterns in your numbers. All numbers are helpful – there are no “good” or “bad” numbers.
- Your results will help you and your healthcare team make decisions about your diabetes treatment plan.
- Call your provider if the numbers are below_____________ or above_____________

Helpful Hints
Check your blood glucose more often:
- If your diabetes treatment plan is changing
- If you are exercising or are more physically active than usual
- If you think you are having low or high blood glucose
- During periods of stress, or if you are sick or just not feeling well
- If you are pregnant (or plan to become pregnant)
People with type 2 diabetes may need to take diabetes medicine. There are various pills that help control blood glucose levels. If you have type 2 diabetes, you may also need to take insulin or one of the newer injected medicines. Discuss with your healthcare provider what would work best for you. Remember that medicine is only part of good diabetes care. Using your meal plan and being physically active are also important. *(Insulin is reviewed in other Joslin EZStart handouts.)*

### Diabetes Pills
- Are only for the treatment of type 2 diabetes
- There are different groups of diabetes pills:
  - Each group works in a different way
  - You may take pills from more than one group
- You may take both pills and insulin or other injected medicines
- For each kind of pill you take, learn how it works, when to take it and possible side effects
- You must continue using a meal plan and a physical activity plan

### Injectable Medicines *(other than insulin)*
- Exenatide (Byetta) and Pramlintide (Symlin) are new medicines that help control blood sugars after meals and may also lead to some weight loss. Exenatide is only approved for people with type 2 diabetes, whereas Pramlintide is approved for people with type 1 and type 2 diabetes who are taking insulin.
  - Side effects include low blood glucose (hypoglycemia) and possible nausea.

### My Diabetes Medicine Action Plan:
In the chart below, write the name(s) of your medicine, the times to take it (before or with a meal) and the amount(s) to take:

I take: ___________________________ at: ___________________________ How much? ________________

I take: ___________________________ at: ___________________________ How much? ________________

I take: ___________________________ at: ___________________________ How much? ________________

### Checking Blood Glucose Levels:
My blood glucose goal level is:  Before meals: _____________ After meals: _____________
Call if blood glucose is out of target per your provider’s instruction.

I will check my blood glucose every day at the following times:

**Before:**  [ ] Breakfast  [ ] Lunch  [ ] Dinner  [ ] Bedtime

**2-3 hours after:**  [ ] Breakfast  [ ] Lunch  [ ] Dinner  [ ] Bedtime

### Helpful Hints
- Keep a written record of blood glucose results. Bring your record to each visit with your healthcare provider.
- Always tell your healthcare provider about all the medicines you take.
- Don’t change how you take your medicine without talking with your healthcare provider.
It is important to know the name of your diabetes medicine, how it is taken, reasons you take it, possible side effects and how it works. There are different categories of pills that work in different ways. That is why you may take more than one kind of pill, or a “combination pill”.

Circle the names of the pills that you are taking.

<table>
<thead>
<tr>
<th>Type of Pill</th>
<th>Important Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin</td>
<td></td>
</tr>
<tr>
<td>Fortamet (extended release form)</td>
<td>How it works:</td>
</tr>
<tr>
<td>Glucophage</td>
<td>How it is taken:</td>
</tr>
<tr>
<td>Glucophage XR (extended release form)</td>
<td></td>
</tr>
<tr>
<td>Glumetza (extended release form)</td>
<td></td>
</tr>
<tr>
<td>Riomet (liquid form)</td>
<td>Possible side effects:</td>
</tr>
<tr>
<td>Glucophage XR (extended release form)</td>
<td></td>
</tr>
</tbody>
</table>

| Actos (pioglitazone) | How it works: | Helps muscle cells use insulin better |
| Avandia (rosiglitazone) | How it is taken: | Actos once a day |
| | | Avandia once or twice a day |
| | | Take it at the same time each day |
| Possible side effects: | | Weight gain, fluid retention |
| | | Does not cause low blood glucose |
| | | Decreases in bone density, especially in women |
| | | Increase in congestive heart failure in those at risk |
| | | Avandia – Increased risk of heart attacks |
| | | Avandia – Not recommended to take with insulin |
| Reminder: | | Have periodic lab tests to check your liver function |

| Januvia (sitagliptin) | How it works: | Helps pancreas release more insulin and reduces the amount of glucose made by the liver |
| | How it is taken: | Take once a day with or without food |
| Possible side effects: | | Upper respiratory tract infection, runny nose, headache |

| Amaryl (glimepiride) | How it works: | Helps pancreas release more insulin |
| Diabeta (glyburide) | How it is taken: | Take right before a meal, usually breakfast or breakfast and supper, except… |
| Glucotrol (gliptizide) | | Prandin and Starlix – take with meals AND, if you skip a meal, skip that dose |
| Glucotrol XL (gliptizide ER) | Possible side effects: | May cause low blood glucose |
| Glycinase (micronized glyburide) | | | |
| Micronase (glyburide) | | | |
| Prandin (repaglinide) | | | |
| Starlix (nateglinide) | | | |

| Glyset (miglitol) | How it works: | Slows down the absorption of carbohydrates from the stomach and intestines |
| Precose (acarbose) | How it is taken: | Take with first bite of the meal; if not eating, do not take! |
| Possible side effects: | | Gas and diarrhea |
| | | Does not cause low blood glucose |

| Actoplus Met (pioglitazone & metformin) | Called “combination pills” |
| Avandaret (rosiglitazone & metformin) | Two different medicines blended together |
| Avandaryl (rosiglitazone & glimepiride) | May decrease the number of pills you take |
| Duetact (pioglitazone & glimepride) | May not be right for everyone |
| Glucovance (glyburide & metformin) | | |
| Janumet (sitagliptin & metformin) | | |
| Metaglip (glipizide & metformin) | | |

Always ask about the availability of generic medicines.
Insulin is a hormone made by your pancreas and is needed to help move glucose from your blood stream into your cells. People who have type 1 diabetes must take insulin. People who have type 2 may control their diabetes with pills, but may also be on insulin. Insulin is taken by injection.

Taking insulin does not mean your diabetes is “bad” or getting worse, it just means your body is not making enough of its own insulin. If you are starting on insulin for the first time, you may feel nervous or worried. Insulin can help you feel better and can help prevent diabetes complications.

**Facts about Insulin**

1. Insulin can be injected with a needle, using either a syringe or an insulin pen. Your healthcare provider will prescribe the method that will work best for you.
2. Always use the same brand and type of insulin your provider has ordered.
3. Never change your dose of insulin unless you speak with your healthcare provider first.
4. Checking your blood glucose regularly can help you see if you’re taking the amount of insulin that is right for you.
5. Call your healthcare provider if you are having trouble drawing up or injecting your insulin or if you see unusual ups or downs in your glucose levels.

**My Insulin Injection Action Plan:**

**Basal insulin dose:**

The name of my insulin is______________________________________

The number of units I take is____________________________________

I will take this insulin at the following times that are circled:

- Before Breakfast
- Before Lunch
- Before Dinner
- At Bedtime

**Bolus insulin dose:**

The name of my insulin is______________________________________

The number of units I take is____________________________________

I will take this insulin at the following times that are circled:

- Before Breakfast
- Before Lunch
- Before Dinner
- At Bedtime

Check here:

- ☐ If I take a rapid-acting insulin I will eat immediately after I take this insulin dose.
- ☐ If I take a short-acting insulin I will eat 30 minutes after I take my dose.

**Checking Blood Glucose Levels:**

My blood glucose goal level is:

Before meals:_____________________After meals:_____________________

Call if blood glucose is out of target per your provider’s instruction.

I will check my blood glucose every day at the following times:

- Before: ☐ Breakfast ☐ Lunch ☐ Dinner
- 2-3 hours after: ☐ Breakfast ☐ Lunch ☐ Dinner

**Helpful Hints**

- ☐ Call your provider in 2 days if you have just started taking insulin
- ☐ Ask what to do when you are sick
- ☐ Keep using a food/activity plan
- ☐ Take action if blood glucose goes below 70
1. Wash hands.

2. If using cloudy insulin, roll the bottle until the insulin is mixed.

3. Wipe top of bottle with alcohol swab.

4. Take cap off of syringe. Pull plunger down to _______ units.

5. With bottle on table, put needle into bottle. Push plunger down to push air into bottle.

6. Turn bottle upside down.

7. Pull plunger half way down to draw insulin into the syringe.

8. Push insulin back into bottle.

9. Pull plunger to _______ units. Check for air bubbles. If seen, push insulin back into bottle and repeat steps 8 & 9.
Some insulins can be mixed together in one injection. For example, the basal insulin NPH (“cloudy” in appearance) can be mixed with rapid acting bolus insulins (“clear” in appearance) aspart (NovoLog), glulisine (Apidra), lispro (Humalog) or with regular insulin (Novolin R or Humulin R). However, the long-acting bolus insulins, detemir (Levemir) and glargine (Lantus) cannot be mixed in the same syringe with other insulins.

1. Get supplies.
2. Wash hands.
3. Roll cloudy bottle. (Bottle B in pictures)
4. Wipe top of bottle with alcohol swab.
5. Pull plunger of syringe down to _____ units equal to cloudy insulin dose.
6. Put needle into bottle of cloudy insulin to push air into bottle.
7. Take needle out.
8. Pull plunger down to _____ units equal to clear insulin dose.
9. Put needle into bottle of clear insulin. (Bottle A) Push air in bottle and leave in.
10. Turn bottle upside down. Pull plunger half way down the syringe.
11. Push insulin back into bottle.
12. Pull plunger down to units of clear.
13. Get rid of air bubbles, then take needle out.
14. Put needle into cloudy bottle and turn bottle upside down.
15. Slowly pull plunger down to the total dose = clear + cloudy.
16. If you draw out too much, throw the syringe out and start over.
Injecting insulin is easy once you learn how. Insulin can be taken as a single dose (one kind of insulin) or as a mixed dose (two kinds of insulin). If you are using an insulin pen, use the same guidelines for injection technique.

### How to Store Insulin

Unopened insulin (vials, pens & cartridges):
- Store in the refrigerator
- Good until the expiration date
- Do not freeze

Opened Vials and Pens in Use
- Vials may be refrigerated or kept at room temperature (36-86°F)
- Pens should be kept at room temperature. Discard pens according to directions
- Discard vials after one month
- Avoid heat and direct light

### How to Dispose of Syringes and Pen Needles

- Check with your local health department
- Do NOT recap, bend, or break needles
- Place into non-clear, puncture-resistant container
- Do NOT label as needles!
- Do NOT place in recycle bins

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What Is Low Blood Glucose?
Low blood glucose (or “hypoglycemia”) is when your blood glucose goes below 70 mg/dL. You may feel symptoms when your blood glucose falls below 70 mg/dL or when blood glucose levels drop quickly even though they may be in your target range. Untreated low blood glucose can be very serious.

What Causes Low Blood Glucose?
- Not enough food or a missed meal
- Too much diabetes medicine
- Too much or unplanned physical activity
- Drinking alcohol without eating

What Are the Warning Signs?
You may feel:
- Sweaty, shaky, or dizzy
- Irritable or confused
- Hungry

You may have:
- A headache
- Changes in your vision
- Difficulty focusing on a task

My Low Blood Glucose Action Plan
1. Check blood glucose, if possible, to be sure that it is low. You can’t always go by symptoms. If in doubt, treat your low blood glucose anyway.
2. Take 15 grams of carbohydrate (carb). Here are some choices:
   - 4 oz. fruit juice
   - 4 oz. regular soda
   - 3-4 glucose tablets
   - 7-8 jelly beans
3. Recheck blood glucose after 10-15 minutes. If blood glucose is still low (less than 80 mg/dL) repeat the treatment (step 2).
4. If your next meal is more than one hour away, eat a small snack.
5. If you’re not sure what caused your low blood glucose, call your healthcare provider.

Helpful Hints
- Always carry hypoglycemia treatment food with you
- Check your blood glucose before and after doing physical activity, before you drive or use heavy machinery
- Wear identification, such as a bracelet, stating that you have diabetes
- Teach family, friends and coworkers to recognize the signs, symptoms and treatments of low blood glucose
- In rare cases, your blood glucose level may fall so low that you pass out. Someone close to you should know how to give you an injection of a medicine called glucagon. Glucagon helps to bring your blood glucose back up quickly. Ask your healthcare provider for a prescription for glucagon.
There is a lot you can do to reduce your risk for complications of diabetes. Complications may involve your heart, blood vessels, feet, eyes, nerves or kidneys. Keeping your blood glucose levels in your target range and your A1C less than 7% are the first steps in preventing complications. Take a look at the lists below. Find what you are already doing well. Choose one or two things you can start doing. You’ll be taking the right steps to a healthier you!

Take Care of Your Heart and Blood Vessels
- Keep your blood pressure less than 130/80
- Get your LDL (bad) cholesterol checked once a year and keep it under 100 (or under 70 if you have a history of heart disease)
- Be more active
- Lose weight if you need to
- Eat less saturated and trans fats, animal protein, and eat fewer salty foods
- Ask about medicines to lower your blood pressure and cholesterol

Take Care of Your Feet
- Check your feet daily for redness, cracks, cuts or sores; treat cuts immediately
- File your toenails instead of cutting them
- Wear shoes that fit well and don’t go barefoot
- Remove your shoes and socks for a foot check at each appointment
- See a foot doctor if you have pain or loss of feeling in your feet

Take Care of Your Eyes
- Have a dilated eye exam every year
- See an eye doctor if you have any pain or problems with your vision
- Keep your blood pressure less than 130/80

Take Care of Your Kidneys
- Get a urine test for “microalbumin” (tiny amounts of protein) at least once a year
- Keep your blood pressure less than 130/80
- Ask about medicines that can help control your microalbumin and your blood pressure

Helpful Hints
- Check your blood glucose levels regularly; know what to do with your results
- Control your blood glucose as best as you can; don’t delay insulin if it is necessary
- Take your medicines as prescribed
- If you smoke, stop!
- Ask about taking a daily aspirin
- See your dentist for regular checkups
- Get a flu shot every year
- Ask for referrals to medical specialists if needed for eyes, feet and kidneys; keep your appointments
- Ask for a referral for diabetes education and nutrition counseling
Eating the right types and right amounts of foods can help you control your diabetes and achieve a weight that is healthy for you.

- Eat a variety of foods from all food groups.
- Eat meals at the same time each day and don’t skip meals.
- Eat about the same amount of carbohydrate foods each day.
- Eat less if you want to lose weight.

Tips to Make a Healthy Meal

- Fill 1/2 of your plate with non-starchy vegetables (broccoli, green beans, carrots)
- Fill 1/4 of your plate with carb (bread, potato, rice, pasta or starchy vegetables)
- Fill 1/4 of your plate with protein foods (3-4 ounces of lean meat, poultry or fish)
- Use 1-2 tsp. of tub margarine or a heart-healthy vegetable oil
- Add a small piece of fruit or 8 ounces of skim/low-fat milk

Ask your healthcare provider for help in scheduling a visit with a registered dietitian (RD).
What Is Carbohydrate Counting?

Carbohydrate, or carb, counting is a way to plan meals and snacks to manage your diabetes. All carbs affect your blood glucose. Eating about the same amount of carb at each meal will help keep your blood glucose steady. Review the list below and find the foods you might eat. Figure out how many carbs they contain. For example, if you eat one cup cooked rice, you’ve eaten 3 carb choices or about 45 grams of carb.

How many carbs should I eat?

Until you see a dietitian, aim to keep the amount of carb you eat the same at each meal.

**Breakfast**

Eat 2-3 carb choices (30-45 grams carb). Include a low-fat protein source like milk or yogurt.

**Lunch and Dinner**

Eat 3-4 carb choices (45-60 grams carb). Include fruit and non-starchy vegetables. Choose small portions of low-fat protein foods.

**Snack**

If needed, eat 1-2 carb choices (15-30 grams carb).

---

### Carb Choices

Each one of these foods in the serving size listed contains about 15 grams of carb.

#### Starches

- 1 slice bread or small roll
- 1/3 cup cooked rice or pasta
- 1/2 cup peas, corn, beans or lentils
- 3/4 cup dry cereal
- 6 saltine crackers

#### Fruit

- 1 small fruit
- 1/2 cup canned fruit or juice

#### Milk/Yogurt

- 1 cup nonfat or low-fat milk
- 3/4 cup light yogurt

#### Sweets

- 1/2 cup ice cream or frozen yogurt
- 2 small cookies
- 1 Tbsp. jam, sugar, or honey

---

### How do I read a food label?

- Find the serving size at the top of the label
- Decide how much you will eat
- Find the total carbohydrate grams per serving
- One carbohydrate serving = 15 grams of carb
- Dietary fiber and sugar are part of the “total carbohydrate”

---

### My Healthy Eating Action Plan:

- Start measuring my carb choices and aim for________choices per meal.
- Read food labels for serving size and total grams of carb.
- Eat meals and snacks at about the same times each day.
- Eat less of the following foods:
  - Make an appointment to meet with a dietitian for my own meal plan.

---

### Nutrition Facts

<table>
<thead>
<tr>
<th>Amount Per Serving</th>
<th>Calories</th>
<th>Calories from Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td>Total Fat</td>
<td>7g</td>
<td>Saturated Fat 1g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trans Fat 1g</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>0mg</td>
<td></td>
</tr>
<tr>
<td>Sodium</td>
<td>110mg</td>
<td></td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>18g</td>
<td></td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>1g</td>
<td></td>
</tr>
<tr>
<td>Sugars</td>
<td>2g</td>
<td></td>
</tr>
<tr>
<td>Sugar Alcohol</td>
<td>5g</td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>2g</td>
<td></td>
</tr>
</tbody>
</table>
High Blood Glucose or “hyperglycemia” is when your blood glucose is above your target goals. In general, if blood glucose levels go above 160, it is considered too high. If your glucose levels run high, you can feel tired and thirsty. You may urinate more often. Or, you may not feel any symptoms. However, high blood glucose causes damage over time if left untreated.

Illness may raise blood glucose. If you have an infection, the flu, undergo a procedure or surgery, or have dental problems, your blood glucose may be higher than usual. It is important to know what to do differently on a sick day, because untreated high blood glucose levels can lead to dehydration and very high blood glucose levels.

Learn what causes your blood glucose levels to go up and to go down and what to do in case you get sick.

**What Will Raise or Lower Blood Glucose Levels?**

**RAISES GLUCOSE**
- Too much food
- Skipped or not enough diabetes medicine
- Illness, surgery or stress
- Less activity than usual

**LOWERS GLUCOSE**
- Not enough food
- Too much diabetes medicine
- More activity than usual
- Alcohol

**How Should I Care for My Diabetes if I’m Sick?**
- Check your blood glucose every 3-4 hours.
- Take your diabetes medications as you usually do.
- Drink plenty of fluids. Aim for 8 ounces or one cup every hour.
- Call for help if:
  - You can’t take in fluids or can’t keep them down
  - Your blood glucose is 250 or higher twice in 24 hours
  - You have stomach pains that don’t go away
  - You have nausea, vomiting or diarrhea
  - You have a fever of 101° or more
  - You are not sure what to do

**What if I Don’t Feel Like Eating?**
- Try to eat or drink foods containing carbohydrate, such as:
  - Apple sauce
  - Apple juice
  - Creamed soup
  - Fruit yogurt
  - Regular ice cream
  - Regular fruit gelatin
  - Regular soda
  - Saltines

Even though you may not be eating your usual amount of food when you’re sick, you still need to take your usual dose of diabetes medicine. You might even need to take more! Check with your healthcare provider if you’re not sure what to do.