

## Scenario: Type I DM

You work in the diabetes (DM) center at a large teaching hospital where you meet K.W. She is a 20-year-old Hispanic woman who was released from the hospital 2 days ago after being diagnosed with type 1 DM.

Nine days ago, K.W. went to see the provider after a 1-month history of frequent urination, thirst, severe fatigue, blurred vision, and some burning and tingling in her feet. She attributed those symptoms to working long hours at the computer. Her random glucose level was 410 mg/dL (22.8 mmol/L). The next day her laboratory values were as follows: fasting glucose 335 mg/dL (18.6 mmol/L), A1C 8.8%, cholesterol 310 mg/dL (8.03 mmol/L), triglycerides 300 mg/dL (3.39 mmol/L), HDL 25 mg/dL (0.65 mmol/L), LDL 160 mg/dL (4.14 mmol/L), ratio 12.4, and creatinine 0.9 mg/dL (80.0 mcmmol/L). Her body mass index was 29.6 with a BP 160/96 mm Hg. She was admitted to the hospital for control of her glucose levels and the initiation of insulin therapy with carbohydrate (CHO) counting. After discharge, K.W. has been referred to you for diabetes education. You are to cover 4 areas: pharmacotherapy, glucose monitoring, basic nutrition therapy, and exercise.

1. What is the overall teaching goal with a patient newly diagnosed with type 1 DM?

The overall teaching goal for K.W who is newly diagnosed with type 1 DM is to have an understanding the new diagnoses. Type 1 DM can be very overwhelming and feeling like a big burden. Making K.W feel comfortable about her new diagnoses of type 1 DM is key.

2. What assessments do you need to make before starting your session?

Determine the level of understanding K.W has of type 1 diabetes along with determining how K.W learns best.

3. K.W. was started on sliding scale lispro (Humalog) four times daily and glargine (Lantus) insulin at bedtime. What are the significant differences between the 2 therapies?

Lispro (Humalog) is a rapid-acting insulin while glargine (Lantus) is a long-acting insulin. Lispro (Humalog) is typically used to control blood sugar spikes after meals, while Glargine (Lantus) provides blood sugar control throughout the day

4. Outline important content to include about insulin therapy.

- Dosage (onset, peak, and duration)
- Symptoms of hypoglycemia & hyperglycemia
- Administration
- Two types of prescribed Insulin

5. What specific points would you include about managing insulin therapy? **Select 5 options.**

- a. Store unopened insulin in the freezer.
- b. The insulin can be used if it is yellow but not expired.
- c. The fastest subcutaneous absorption is from the abdomen
- d. Administer the lispro (Humalog) within 15 minutes of eating.
- e. Ideally, the glargine (Lantus) should be administered at bedtime.
- f. A prefilled syringe can be stored for 24 hours at room temperature.
- g. Always administer the injections in the same, easy-to-reach location.
- h. The current vial of lispro (Humalog) can be kept at room temperature for 1 month.
- i. Two injections will be needed to administer lispro (Humalog) and glargine (Lantus).

6. What is the best way to determine whether K.W. can safely self-administer insulin?

- a. Having her describe the process step-by-step
- b. Evaluating her A1C levels and daily glucose logs
- c. Observing her draw up and administer an insulin dose
- d. Asking her to rate her confidence in her ability to give a self-injection

7. Outline important content to review about glucose monitoring.

Glucose monitor should be done QIDACHS. A normal blood glucose level ranges from 70 to 99. If your blood glucose is below 70 it is considered hypoglycemia. Drinking apple juice or eating some candy will elevate the blood sugar. If your blood glucose is above 99 it is considered hyperglycemia. Administration of insulin will decrease the level of blood glucose.

8. K.W. states her diet is mostly fast foods. The foods she cooks at home are high in starch and fat. Her mealtimes often vary from day to day because of her work schedule. What is CHO counting? Why might this method work well for K.W.?

CHO counting is the estimated measurement of carbohydrates in a meal or drink. K.W. will benefit from CHO counting to help optimize blood sugar control. Especially, when K.W. is not following a strict diet, and mealtimes vary from day to day.

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9. Outline important points to cover about a basic nutrition plan with CHO counting.

- CHO should provide 45% to 65% of daily calorie intake or 150 to 250 g/day
- Start with a goal of 45 to 60 grams of CHO per meal
- CHO counting will become beneficial when managing blood sugar levels

10. K.W. states that she currently does not exercise at all. What benefits will K.W. receive from taking part in an exercise program?

Taking part in an exercise program will be beneficial to reduce or maintain weight, potentially reducing the need for insulin in the long run, and controlling blood glucose levels

11. What do you need to teach K.W. about safe exercise?

Exercise can be very beneficial for individuals with diabetes to manage blood sugar levels and weight. Encouraging exercise 2 to 3 times a week is best practice. Exercise can consist of walking, jogging, cycling, or even swimming.

12. Describe 3 suggestion you can make to help her deal with her condition and follow the treatment plan.

1. Exercise 2 to 3 times a week including walking, jogging, cycling, and/or swimming.
2. Follow CHO counting to help optimize blood sugar control
3. Monitor glucose with every meal and at bedtime to ensure blood sugar is within range

13. What outcomes could you use to determine if your teaching with K.W. was effective?

To confirm teaching was effective asking K.W to teach-back information gained along with asking open-ended questions for K.W to answer.

**CASE STUDY PROGRESS**

K.W. calls the clinic several days later reporting that she has “the flu.” She has been nauseated and vomited once during the night. She has had 2 loose stools. She states that she does have a few chills and may have a low-grade fever but does not have a thermometer. She did not check her glucose level this morning or take her insulin because she has not eaten.

15. Based on these findings, you recognize that K.W. may be experiencing \_\_\_\_1\_\_\_\_. The priority intervention is to \_\_\_\_2\_\_\_\_.

Options for 1	Options for 2
hyperglycemia	administer the normal morning insulin dose
hypoglycemia	ingest a rapid acting carbohydrate
	measure her glucose level

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Use an X to indicate whether the instructions below are Indicated (appropriate or necessary) or Contraindicated (could be harmful) for K.W. about managing illness and DM.

Instruction	Indicated	Contraindicated
a. Check glucose level every 2-3 hours throughout the day.	x	
b. Maintain strict NPO status		x
c. Use over-the-counter medications for symptom control.	x	
d. Obtain a yearly influenza vaccine.	x	
e. Take insulin as ordered; call back if there you have concerns so the HCP can adjust insulin doses	x	
f. Someone should be with her in case of an emergency.		x