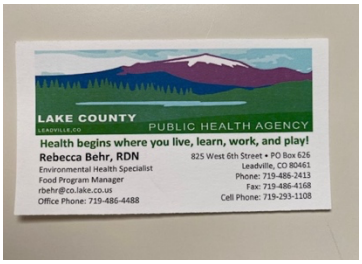
Diabetes Case Study

Background and Process:

a. Patients were observed at a family practice clinic: Rocky Mountain Family Practice under the supervision of Sally Ayotte, RD. This is a clinic in a rural community, local population 1,500 run by a primary attending family physician Dr. Lisa Zwellwinger. She is also the Lake County Chief Medical officer, and primary admitting physician at the local hospital: St. Vincent Hospital.
b. Over a period of 6 weeks, I was in communication with Sally Ayotte regarding her range of practice (WIC, Senior Center Coordinator, Meals on Wheels and private patient care throughout multiple rural communities). On two occasions, I shadowed her in the clinic while she treated patients with CVD, Gout, Diabetes and Obesity for a total of 10 hours and 45 minutes of contact time. A copy of the log entry is at the end of this document.
c. On one occasion – Sally put me in contact with the Lake County Health inspector Rebecca Behr, RDN. Although this did not count towards the assignment – I shadowed her to inspect the Lake County Senior Center. As of right now (April, 2020) Rebecca's job has changed dramatically, she is now working on the county response to COVID-19.



d. The clinic did ask that patient data be obscured, so although the patient is real, some of the details are different. This was an incredibly invaluable experience to observe comprehensive care (Assessment, Diagnosis, Intervention, Monitoring and Evaluation). It was also useful to see how electronic medical records are created and maintained, and observe some of the educational material used during patient counseling sessions.

Preceptor – Sally Ayotte, RD:

e. She has been in practice for nearly 20 years and has background working both in private and public settings. Her recommendation is that I find the busiest hospital possible for an internship. She is the perfect coach and role model for the type of job I'd like to have in the future.

I. Demographics

A. Ms. Lara T. is a 51 y.o. female assigned at birth, of Hispanic descent. Her occupation is part time waitress.

B. She lives in a rural community with access to a small hospital and family medical center.

II. Chart Review

A. She was admitted to St. Vincent Hospital on December 25th after losing consciousness. She was revived by the emergency team, and subsequently interviewed. She had recently been feeling very tired, and admitting to "over doing it" in terms of eating and drinking during a Christmas Eve party the day before. She also complained of right abdominal pain. She has a family history of type II diabetes, and as well as a history of gestational diabetes.

Her diagnosis was: Diabetes Type II, and Fatty Liver disease. The diagnosis did not specify whether it was NAFLD. Her release instructions were to begin oral dose of Metformin 500 mg, 3 times per day and to begin diabetes education with the local RD, who travels to Leadville one time per month.

Table 1: Arthrometric, Biometric and Medication Data for Ms. L.T.

Date of Visit	Height	Weight	BMI	Blood sugar (Avg. 24 hr period)	Blood Pressure	Hemoglobin A1C	Metformin Dose	Notes
12/25/19	61 inches	148	**27**	**14.3 mmol/L (> 200 mg/dL)**	**-**	**10.6**	3 x 500 mg	Unconscious, extreme fatigue
01/29/20	-	142	**26**	**150mg/dL**	116/82	8.1%	4 x 500 mg	First Diabetes Education Session: Experiencing diarehha
02/12/20	-	141	**26**	92 mg/dL	120/83	6.9%	Extended Release 3 x 500 mg	Second Diabetes Education Session

Diagnosis: etiology, symptoms, treatment

A. She has a history of gestational diabetes – diagnosed 21 years ago while she was pregnant with her son. She also has family history of: Type II DM, as well as alcoholism, CVD, and obesity. No other major surgeries.

C. Primary Diagnosis - Diabetes Mellitus – Type 2 (DMT 2) Description

A diagnosis of diabetes type 2 is based on an elevated fasting blood glucose (>100 mg/dL) or HbA1c > 6.5% (CDC, 2020) Diabetes is a complex metabolic syndrome, caused by a combination of genetic predisposition, poor nutrient quality diet, and low physical activity. Over time, insulin resistance is increased, resulting in reduced glucose tolerance, hyperlipidemia and hypertension. A primary characteristic of DMT 2 is hypermetabolism, evidenced by elevated inflammatory cytokines IL-6, TNF-alpha and IL-1 beta.

The standard of care should address each of the following:

1. Correct metabolic syndrome:
   - Reduce her high fasting plasma glucose < 100 mg/dL; HbA1c < 7%
   - Reduce her weight, at the time she was initially seen, her BMI = 26, Overweight. Ideally her waist circumference < 35" (women)
   - Reduce her triglycerides = < 150 mg/dL
   - Increase HDL > 50 mg/dL (women)
   - Maintain lower Blood pressure <130 diastolic, < 80 systolic (or lower)
2. ID and correct common Diabetes Nutrient Deficiencies: Vitamin D, B12, B1, Magnesium, Chromium.

- Vitamin D (Cholecalciferol): Important for the regulation of calcium and phosphorus (bone break down and remodeling). There is varying scientific research on the relationship between Vitamin D and insulin resistance. Some studies indicate that Vitamin D influences inflammation, and may decrease insulin resistance. All studies agree there is a correlation, however it is unclear whether there is a causal relationship.
- B12 (Cobalamin): Important for nerve cell and cardiac function as well as DNA replication. Studies have shown that a deficiency in B12 leads to a build-up of methylmalonic acid, which in turn can lead to high homocysteine – leading to arterial damage and blood clots. Metformin, the treatment this patient is using, is associated with B12 deficiency.
- B1 (Thiamine): Important for nerve cell, cardiac function and carbohydrate metabolism. Recent studies using a fat-soluble version, benfotiamine, improve diabetic neuropathy.
- Magnesium: Used for a multitude of cellular functions, estimated as a cofactor for ~300 metabolic reactions. Low levels are associated with insulin resistance, impairment of insulin performance, renal failure, and neurological impairment.
- Chromium: Deficiencies ae associated with high fasting glucose levels because chromium increases insulin activity.

3. Correct lack of physical activity
4. Clinical education about daily care: food intake, carbohydrate counting, blood testing, medication

III. Medications

A. Purpose of drug and side effects

a. Metformin

i. Purpose is to reduce blood glucose.

ii. Side effects: Low blood sugar, GI distress (gas, pain, bloating, diarrhea), tired/weakness

B. Drug/Nutrient interaction – as noted above

a. Metformin interacts with B12.

IV. Laboratory Values

A. Serial values by date in table form – See Above

B. Normal values listed – Abnormal values shown in **RED**

Some of the data was “made up” to obscure privacy however - even during the clinic visit, we did not have data on her original intake - triglyceride levels, cholesterol levels or any chart records that explained her fatty liver diagnosis. My assumption is that she presented with either hyperlipidemia or some type of alcohol related effects.

C. Brief discussion of abnormal values

Her glucose levels were above treatment range at intake and at her first monthly appointment. After that, her levels went down when her food intake was increased. Even though this seem counter-intuitive – in the January appointment she was not eating enough food, and her Metformin dosage was being increased based on blood work instead of an evaluation of her total energy intake.

V. Anthropometrics (BMI based on December 25, 2019 visit)

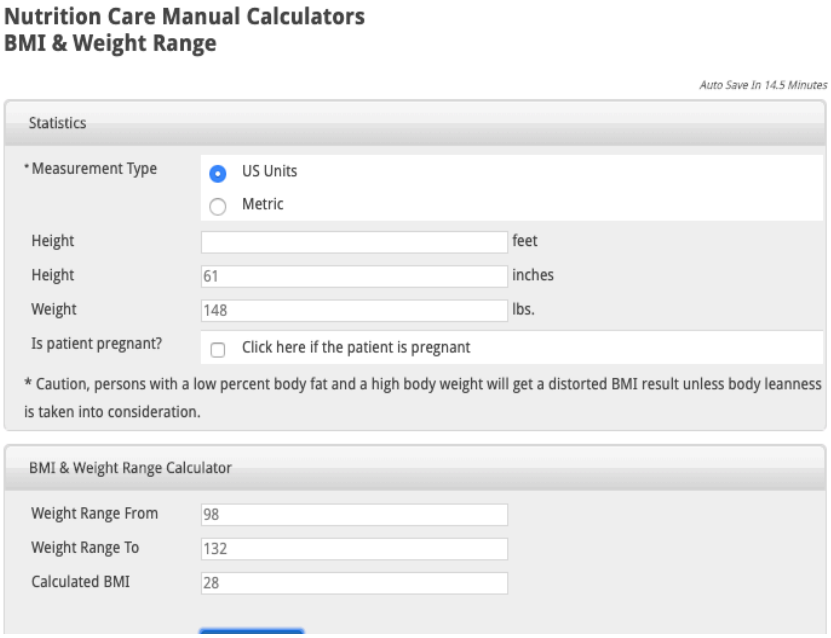
It would have been good to get a waist measurement. In clinical practice that seems to be a less “threatening” number to people. Every patient talked about their weight, the scale not being calibrated, holiday eating, etc.

A. Height = 61”

B. Weight: usual, ideal, percent of usual, percent of ideal

We did not have Usual Weight data.

Date	Actual Weight (lbs)	Ideal (Hamwi)	Percent of ideal
12/25/19	148	=100 + 5 =105	141%
1/29/20	142	105	135%
2/12/20	141	105	134%



VI. Diet History – from patient (family member) interview and medical chart
A. Diet prior to admission – modifications previously prescribed

<u>24 Hour Recall (December 25, 2019) Emergency visit</u>

Breakfast
Cinnamon roll (Giant sized)
2 cups of coffee
Lunch
Cheese enchiladas
Christmas sugar cookies
12 oz coke
Dinner
Pork posole
Fried sopapillas
Honey
Large margarita
Snack
Fudge brownie

<u>24 Hour Recall (January 29,2020) Clinic visit</u>

D. Usual intake – from recall

Breakfast	
½ large Banana	1 Exchange
½ white bagel with butter	2 Exchange
1 cup coffee, black	
Lunch	
1 cup beef stew	1 Exchange
12 oz diet coke	
Dinner	
1 – 4 oz beef patty	
½ cup pinto beans	1 Exchange
12 oz diet coke	
Snack	
None	

The estimated caloric intake for her day = 847 kcal
Number of exchanges = 5 Exchanges
Total grams carbs = 83 g (~5.5 Exchanges)
Total grams protein = 54 g

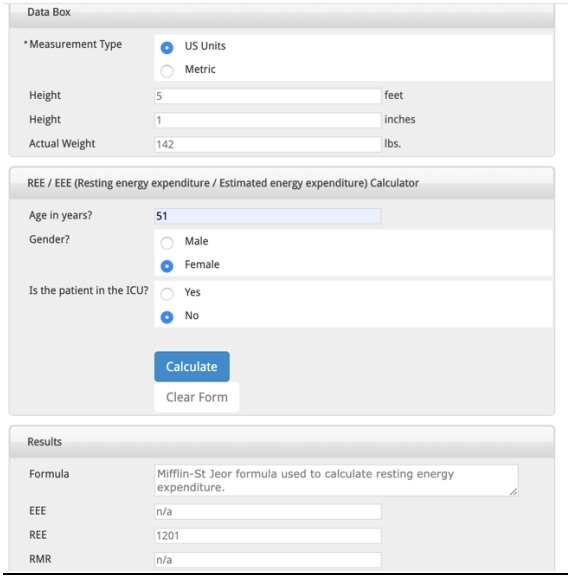
C. Any supplements used - NONE

VII. Estimation of Needs (January 29, 2020 visit)

A. Energy: formulas or factors used to calculate

Use NCM weight calculator **REE = 1201 based on Mifflin St. Jeor.**

Using an activity factor of 1.2 her total daily energy needs = 1201 x 1.2 = **1440 kcal/day**



B. Protein needs Nitrogen needs Gm/kg Calorie: Nitrogen ratio (January 29, 2020 visit)

Protein needs

- 0.8 – 1.0 g/kg/day for normal weight
  = 52 - 65 g/day
- 1.5 - 2.0 g/kg/day for diabetics who are seeking better glucose control, weight reduction, lowered blood pressure and improved lipid profile (Hamdy, 2011)
  = 97 – 129 g/day
- Overall estimating protein to be **65 – 129 g/day.**

Nitrogen needs

- Nitrogen factor - 6.25 g of protein for every 1 g of nitrogen
- Assume protein needs at 65 g/day then nitrogen needs are
  - = 65/6.25 = **10g nitrogen per day**

Calorie: Nitrogen ratio

- She is not acutely ill, or hospitalized. Therefore her NPC:N ration should be approximately 150:1
- NPC = Total calories 1440 – protein calories of 65 g/day x 4
  = 1440 – 260
  = 1180
- NPC: Nitrogen Ratio = 1180/10:1
- = 118:1

This indicates that she can consume 65 g/day protein in her diet, but does not need the higher end recommendation of 129 g protein per day, due to the small number of NPC available in her total energy needs.

C. Fluid
- Intake should 1 ml/kcal of intake = 1440 ml = 1.4 Liters per day.
- NOTE - she lives at very high altitude, 10,200 feet. It is generally accepted that fluid intake should be increased, however specific studies are limited (Anand, 1996)

E. Vitamins/Minerals – increased requirements
a. Suspected history of excessive alcohol consumption combined with the Metformin, consider a Vitamin B supplement or daily multi-vitamin, in addition to adding more nutrient dense food choices

VIII. Assessment of Nutritional Status (January 29, 2020 visit)

A. Statement or paragraph listing current nutritional problems based on all the above

As indicated in the biochemical, laboratory and anthropometric data provided above, combined with client history and food recall:

Overweight, inadequate energy intake, inadequate fluid intake, inadequate protein intake, undesirable food choices (lack of nutrient rich fruit and vegetable intake, excessive saturated fat in diet), intake of carbohydrates inconsistent with needs, food and nutrition related knowledge deficit, (macro content – carbohydrates), physical inactivity.

B. Overall nutritional status: poor, fair, good, excellent – **rated Fair based on the information provided,** with lipid /triglyceride information – this could easily drop to Poor

C. Patient feedback of nutrition intervention (comprehension, individual goals, willingness to comply)

The patient was actively engaged in educational process regarding label reading and carbohydrate exchanges. She was performing regular blood glucose monitoring, and complying with medication instructions. However, she did have a knowledge deficit of macronutrient content of food, the cause and evolutionary path of diabetes and diabetes treatment methods.

In the February 12, 2020 appointment, she was having difficulty with the oral medication treatment regime, and due to RD scope of practice was referred to her physician for additional evaluation. As stated in an interview:

"the metformin gives me diarehha and I'd rather be on insulin like my other family members".

X. Outcome/Evaluation

A. Statement or paragraph regarding nutrition intervention and impact on patient outcome

The nutrition intervention process had a very positive impact. During the appointment several items were used: poster about how to read a food label, measuring cups, hand out about carbohydrate counting. She was able to leave the appointment better educated on label reading, appropriate spacing of meals, carbohydrate counting and general food macronutrient content.

At the follow up appointment she was able to describe food exchanges consumed and relate her improved choice of diet coke vs regular coke.

B. If no follow up available, what would be covered in a follow up appointment and possible expected outcomes.

The initial appointment addressed the acute needs associated with a new diabetes diagnosis.

Future appointments should focus on establishing goals associated with increasing fluid intake, protein, physical activity and reducing saturated fat. Triglyceride data would guide further goals associated with Fatty Liver Disease and potentially open the door for an alcohol consumption discussion.

Educational effort should continue – particularly in the area of how weight loss can benefit and even reverse diabetes.

IX. Nutrition Care Plan (Use ADIME charting method from textbook Table 10-2)

Appointment: January 29, 2020. 10:03 - 10:57 am.

Assessment

Pt. reports weight loss since initial diagnosis, decreased interest in food. No food allergies. Diagnosed one month previous with Type II Diabetes during emergency visit related to "overconsumption" during the holidays. History of gestational diabetes. Reported need to understand what she can and cannot eat.

Today's vitals:
- Ht = 61"
- Wt = 142 lbs, loss of 6lbs – 6/142 = 4% since December
- BMI = 27 = Overweight
- Ideal body weight = 105 lbs
- % Ideal body weight = 135%
- BP = 116/82

Medication:
- 500 mg Metformin 3 x day (changed at appointment to 4 x day by physician)

Estimated Needs
- Estimated energy needs = 1440 kcal/day
- Fluid intake = 1440 ml/day
- Protein = 65 – 129 g/day (1.0 – 2.4 g/day)

Previous Labs (12/25/19)
- A1c = 10.6%
- Glucose = 200 mg/dl
- Wt = 148

Current Lab (1/29/20)
- A1c = 8.1%
- Glucose = 150 mg/dl

Nutrition Diagnosis; using a PES statement and include N:code

Inadequate energy intake related to limited patient knowledge of appropriate food intake for the management of type II diabetes as evidence by weight loss of 4% in the last month, self-reported caloric intake at 59% of needs (847 of 1440 kcal/day) and blood glucose of 150 ml/dl.

NI-1.2

Nutrition Intervention

Nutrition Education and Counseling
Intervention focused on education about carbohydrates. Education on which foods contain carbohydrates, how to calculate a carbohydrate exchange, appropriate portion sizes, ability to read food labels for carbohydrate (vs sugar) information and serving size.

Food/Meal Planning Approaches
Target discussion on intake of excessive carbohydrate containing foods currently in diet: coke, white bread.

Developed an ideal day Menu.

Provided the handout: Ready Set Start Counting

Established the following goals:

- Continue to consume 3 meals per day
- Continue regular glucose monitoring
- Replace regular soda with diet soda
- Eat 4 carbohydrate food exchanges per day (60 grams)

- Increase energy intake by adding protein sources low in saturated fat: swap out beef/cheese/pork in one meal per day for tuna, legumes, protein bar
- Drink ½ liter of water 3 times per day
- Walk for 15 minutes daily after work M,W,F and participate in Zumba every Saturday.
- Return for a follow up visit in February and March

Monitoring and Evaluation

Appointment: February 12, 2020, 11:00 – 11:15am

Patient reports experiencing severe GI distress, additional 1lb of weight loss but improved glucose control (average 92 mg/dl).

Due to scope of practice – the discussion focused primarily on the need to schedule an appointment with the physician to address GI issues and potential medication complications.

24 Diet recall indicated good adherence to the following goals:

√ Consuming 3 meals per day
√ Continuing regular glucose monitoring
√ Replacing regular soda with diet soda
√ Eating 4 carbohydrate food exchanges per day (60 grams)
√ Return for a follow up visit in February and April.

Reinforced the importance of adding high quality protein as a way to increase calories and improve glucose. It was not an appropriate time to discuss physical activity and fluid intake, however patient did agree to a follow-up appointment in April.

New actions:

- Discuss medication side effects with physician.
- Continue to monitor glucose and A1c labs.
- Obtain lipid profile.
- Follow up in April

Signed: Karen Casey, Student

XI. References

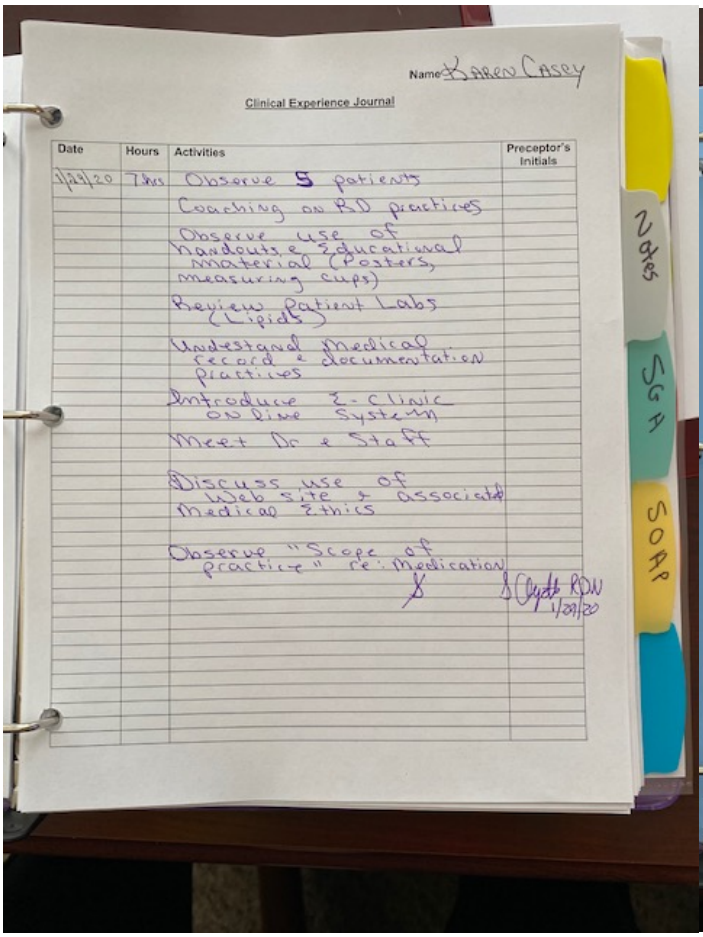
Diabetes, retrieved from http://lllnutrition.com/mod_lll/TOPIC21/m211.pdf, March 29, 2020.

Mahan, L., & Raymond, J. L. (2017). *Krause's Food and The Nutrition Care Process* (14 ed). St. Louis, Missouri: Elsevier.

Academy of Nutrition and Dietetics. (n.d.). Nutrition Care Manual Diabetes. Retrieved March 29, 2020 from https://www.nutritioncaremanual.org/client_ed.cfm?ncm_client_ed_id=48

Anad, I & Chandrashekhar, Y (1996). *Nutritional Needs In Cold And In High-Altitude Environments*. Washington (DC): National Academies Press (US); 1996. 18, Fluid Metabolism at High Altitudes. https://www.ncbi.nlm.nih.gov/books/NBK232881/

XII. Log of Clinic Observation

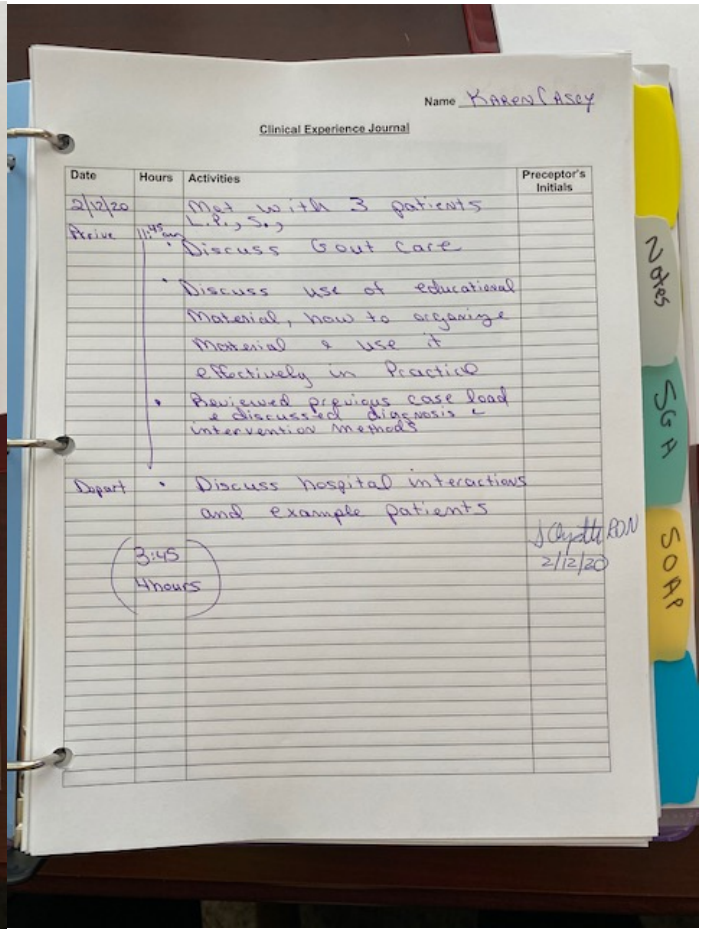


Name Karen Casey

Clinical Experience Journal

Date	Hours	Activities	Preceptor's Initials
1/29/20	7hrs	Observe 5 patients Coaching on RD practices Observe use of handouts, e educational material (posters, measuring cups) Review Patient Labs (Lipids) Understand medical record & documentation practices Introduce E-clinic on line System Meet Dr & Staff Discuss use of Web site & associated medical Ethics Observe "Scope of practice" re: medication X	S Clyatt RDN 1/29/20

Notes SOAP



Name Karen Casey

Clinical Experience Journal

Date	Hours	Activities	Preceptor's Initials
2/12/20		Met with 3 patients L.P., S.J.	
Arrive	11:45 am	• Discuss Gout Care • Discuss use of educational material, how to organize material & use it effectively in Practice • Reviewed previous case load & discussed diagnosis & intervention methods	
Depart		• Discuss hospital interactions and example patients	S Clyatt RDN 2/12/20
		3:45 4hours	

Notes SOAP

Diabetes Care and Education
a dietetic practice group of the
Academy of Nutrition and Dietetics

Ready, Set, Start Counting!

Carbohydrate Counting — a Tool to Help Manage Your Blood Glucose

When you have diabetes, keeping your blood glucose in a healthy range can help you feel your best today and in the future. Carbohydrate counting — or "carb counting" — is a flexible meal-planning tool (not a diet) that can help you understand how your food choices affect your blood glucose level.

Carbohydrate and blood glucose

Any carbohydrate food you eat (e.g., milk, fruit, bread and pasta) is digested into glucose, which causes your blood glucose level to increase. However, eating some carbohydrates throughout the day is important because they provide energy and essential nutrients for your body. To better manage your blood glucose, energy levels and weight, pay attention to how much carbohydrate you eat.

Maintaining the right balance between carbohydrate and insulin (whether your body produces it or you take it) helps to regulate your blood glucose level. Determining when and how much you eat — and whether or not you have snacks — should be based on your lifestyle, medications and meal-planning goals. A registered dietitian nutritionist (RDN) may consider the following ways for you to use carb counting to determine the healthiest plan for you:

- **Portion Control:** Setting a maximum amount of carbs for each meal within your healthy meal plan and/or taking diabetes medications can keep your blood glucose from getting too high.

- **Consistency:** If you use diabetes medications or insulin, it may be important to eat the same amount of food and carbohydrate at the same time each day. Doing this can keep your blood glucose from getting too high or too low.
- **Flexibility:** If your insulin plan includes varying doses based on how much carbohydrate you are eating (carb/insulin ratio), accurate carb counting can help you determine how much insulin to take.

Foods that contain carbohydrate:

- Grains (e.g., breads, crackers, rice, hot and cold cereals, tortillas and noodles)
- Starchy vegetables (e.g., potatoes, peas, corn, winter squash, lentils and beans)
- Fruit and juices
- Milk and yogurt
- Sweets and desserts

Non-starchy vegetables (e.g., carrots, broccoli and tomatoes) contain only a small amount of carbohydrates and do not affect blood glucose when eaten in small portions.

Carbohydrate choices and portion sizes

- A "**carbohydrate choice**" is a portion of food, such as a 1-ounce slice of bread, that has 15 grams of carbohydrate (1 carbohydrate choice = 15 grams of carbohydrate).

  The idea is that total carbohydrate from any food often has a similar effect on blood glucose levels.

- Small portions of sweets or sugar can occasionally be used in place of other carbohydrate- containing food.

- Measuring or weighing foods can help you learn what common portion sizes look like. If you do not have access to a scale or measuring cups, refer to these hand-estimated illustrations.

Learn how to read food labels

Here are tips for reading food labels.
Remember: Always compare the serving size listed to your actual portion.

1 Find the serving size.

2 Locate the total carbohydrate in one serving. (Sugars are included in this number, so you do not need to count them separately.)

3 Compare the serving size listed to your actual portion.

4 Count the grams of carbohydrate or the number of carbohydrate choices. In this example, 10 crackers have about 15 grams of carb and equal 1 carb choice.

Nutrition Facts

Serving Size 15 crackers (30g)	
Servings Per Container about 14	
Calories 130	
Total Fat 3g	5%
Saturated Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 22g	7%
Dietary Fiber 2g	8%
Sugars 3g	
Protein 3g	–
Vitamin A	0%
Vitamin C	0%

The number of carbohydrate choices you need depends on your body size, activity level and weight-management goals. An RD or RDN can help you determine the appropriate amount of carbs for you. Visit www.eatright.org to find an RD/RDN near you.

Determine carbohydrate choices online

When a nutrition label is not available, often you can find the information online.

1. Locate the name of the company that produced or packaged the food and visit its website.
2. Refer to a reliable website that provides nutrition information, such as:

   a. Calorie King (www.calorieking.com)

   b. MyFoodAdvisor (http://tracker.diabetes.org/explore)

3. Download a nutrition app onto your cell phone:
   a. For a list of apps, visit http://www.dce.org/public-resources/diabetes/
4. Check out your favorite chain restaurant's nutrition information on their website so you can stick to your plan when you eat away from home.

Food lists

Breads, Grains and Cereals	Milk and Yogurt	Fruits	Vegetables and Beans	Sweets and Snack Foods
1 ounce bread product (1 slice bread, ¼ large bagel, 6" tortilla) 1/3 cup cooked rice or pasta 1 cup soup ¾ ounce unsweetened cold cereal (*serving sizes vary, check label*) ½ cup cooked cereal 3 cups air-popped popcorn	1 cup fat-free, low-fat, or whole milk 6 ounces low-fat or fat-free plain or Greek yogurt 6 ounces flavored yogurt made with low-cal sweetener (*these vary, check label*)	1 small piece fresh fruit ½ medium fruit (apple, banana) ½ cup canned fruit in own juice 1 cup honeydew or cantaloupe 1 ¼ cup watermelon ½ cup fruit juice 2 TBSP dried fruit 1 cup raspberries 1 ¼ cup strawberries 1 cup blackberries ¾ cup blueberries	½ cup potato, sweet potato, peas, corn ½ cup cooked beans, legumes (garbanzo, kidney, black beans) 1 cup winter squash 1/3 cup cooked cassava, yam, taro 1/3 plantain (green or yellow) 1 ½ cups cooked vegetables (small portions of nonstarchy vegetables are free)	¾ ounce snack food (pretzels, 4-6 crackers) 8 baked chips, potato, pita 13 regular chips, tortilla, potato 1 ounce sweet snack (2 small sandwich cookies, 5 vanilla wafers) 1 TBSP sugar or honey ½ cup regular ice cream

The lists above provide a basic idea of the carb count in common foods. Each portion is one carbohydrate choice (15 grams of carbohydrate). Foods with fewer than 20 calories and fewer than 5 grams of carbohydrate are considered "free."These include sugar-free beverages, sugar substitutes, spices and seasonings.

Carbohydrate choices for common serving sizes

- 1 regular sandwich = 2 carbohydrate choices or about 30 grams of carbohydrates
- 1 6" sub sandwich = 3 carbohydrate choices or about 45 grams of carbohydrates
- 1 cup cooked rice or pasta = 3 carbohydrate choices or about 45 grams of carbohydrates
- 1 medium (average) apple or banana = 2 carbohydrate choices or about 30 grams of carbohydrates

Better carbohydrate choices

Carbohydrate counting is important, but the type of carbohydrate also is important for both blood glucose and overall health. All carbohydrates are not the same. Choose better carbohydrate choices, such as whole grains and less-processed foods.

- Opt for beans and other legumes.
- Select whole grain bread, whole grain pasta and brown rice over white (refined) varieties.
- Experiment with many types of whole grains, including barley, oatmeal, quinoa and bulgur.
- Go for whole fruits instead of fruit juice or sugary foods.
- Select a variety of vegetables such as cauliflower, tomato, carrots and spinach (most vegetables are great choices).

How much to eat?

For Weight Maintenance

Women

Many women need about 3-4 carbohydrate choices (45-60 grams) at each meal

Breakfast	
1 slice (1 ounce) whole grain toast	1 carbohydrate choice
1 teaspoon light margarine	
1 egg omelet with spinach and mushrooms	
1 small orange	1 carbohydrate choice
6 ounces low-fat plain Greek yogurt	1 carbohydrate choice

Lunch	
1 sandwich with whole grain bread	2 carbohydrate choices
1 small fruit	1 carbohydrate choice
1-2 cups veggies	0-1 carbohydrate choice

Dinner	
1 piece of chicken	
1 cup winter squash	1 carbohydrate choice
1 small fruit	1 carbohydrate choice
1 -2 cups broccoli 1 large green salad	0-1 carbohydrate choice
1 cup fat-free skim milk	1 carbohydrate choice

Men

Many men need about 4-5 carbohydrate choices (60-75 grams) at each meal

Breakfast	
1 small orange	1 carbohydrate choice
1 cup cooked oatmeal made with water	2 carbohydrate choices
1 cup fat-free milk	1 carbohydrate choice
2 tablespoons nuts 2 tablespoons raisins	1 carbohydrate choice

Lunch	
1 cup brown rice	3 carbohydrate choices
1-2 cups chicken and veggie stir fry	0-1 carbohydrate choice
1 small fruit	1 carbohydrate choice

Dinner	
1 cup pasta	3 carbohydrate choices
½ cup red sauce with meat	1 carbohydrate choice
6 ounces low-fat plain Greek yogurt	1 carbohydrate choice
1 large green salad	0-1 carbohydrate choice

My Individual Carbohydrate Goals

	Time	Carbohydrate choices or grams
Breakfast		
Snack		
Lunch		
Snack		
Dinner		
Snack		
TOTAL		

Healthy eating is about more than just counting carbohydrates. It is important to eat balanced meals with an emphasis on vegetables and fruits.

Eat a variety of foods. For most people these include:

- at least 5 servings of fruits and vegetables
- at least 3 servings of whole grains or legumes (beans)
- 2–3 servings of low-fat or fat-free dairy
- Adequate protein and healthy fats

Boehringer Ingelheim Lilly DIABETES

Protein foods (including meat, poultry and fish) and fats do not directly affect blood glucose and can help you feel satisfied, although they do add calories. To keep your heart healthy, choose healthy fats (like those found in nuts, seeds and fish) in appropriate portions. With all of the food you eat, remember that portion control is important.

For a referral to a registered dietitian nutritionist and for additional food and nutrition information, visit the Diabetes Care and Education Practice Group at www.dce.org or the Academy of Nutrition and Dietetics at www.eatright.org, or 1-800-877-1600.

Diabetes Care and Education
a dietetic practice group of the Academy of Nutrition and Dietetics
eat right.