Name: Kim LaMora

Instructions: This is not a group case study; it is an individual assignment! Complete the following questions using the background information of Case 23 (pages 79-85).

Remember RD’s are experts in researching evidence-based practice for their patients so you can use other credible sources. ***Be sure to reference your answers and provide a Work Cited page at the end.***

1. Understanding the Disease and Pathophysiology

   1. What are the risk factors for development of type 2 diabetes mellitus? What risk factors does Mrs. Douglas present with?
      The risk factors for development of type 2 diabetes mellitus are increased age, obesity, family history, history of gestational DM, impaired glucose metabolism and physical inactivity. Mrs. Douglas’ risk factors are her age, family history (her sister) and she is obese with a BMI of 30.4.

   2. What are the common acute complications associated with type 2 diabetes mellitus? What are the chronic complications? Describe the pathophysiology associated with the chronic complications, specifically addressing the role of chronic hyperglycemia.
      Common acute complications are diabetic ketoacidosis, illness, somogyi effect, dawn phenomenon and hypoglycemia. Chronic complications include neuropathy, nephropathy, retinopathy, hypertension and CVD.
      Neuropathy is caused by the persist presence of hyperglycemia. The pathways of the nervous system are disrupted by damage that is caused by the accumulation of abnormal substances. Some examples of these abnormal substances include sorbitol and glycated proteins. The damage can affect many organ systems. The GI tract, genitourinary tract and the cardiovascular system are commonly damaged and affected.
      Retinopathy is a microvascular complication. It becomes more prevalent as the duration the diabetes increases. It is believed that damage to the eyes is caused by damage to the blood vessels from hyperglycemia. Changes in blood vessels and the accumulation of sorbitol seem to be leading causes of the damage. The development of macular edema, frequently caused by hypertension is also a cause for retinopathy. Retinopathy can be decreased lowering blood pressure and glycemic control.
      Nephropathy is a microvascular complication. Hyperglycemia causes changes and damage to the glomerules of the kidney increasing permeability and decreasing the kidney’s filtering capabilities. Microalbuminuria is the earliest stage of nephropathy. Nephropathy can be delayed by protein restriction, ace inhibitors and intensive diabetes management.
      Cardiovascular disease is a macrovascular complication. Hyperglycemia causes damage to blood vessels. This leads to thickening and changes in the subendothelial layer. The flexibility of the blood vessels decrease causing blood pressure to rise. Advanced complex atherosclerosis lesions develop. Ulcerations can occur leading to embolization and or thrombus formation.
      Hypertension can be caused by hyperglycemia. The excess glucose in the blood causes endothelial damage which leads to the thickening and inflexibility of the subendothelial layer. This causes blood pressure to rise leading to hypertension.

   3. Here are four features of the physician’s physical examination as well as her presenting signs and symptoms that are consistent with her admitting diagnosis. Describe the pathophysiology that might be responsible for each physical finding.

<table>
<thead>
<tr>
<th>Physical Finding</th>
<th>Physiological Change/Etiology</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Physical Finding</th>
<th>Physiological Change/Etiology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unhealed ulcer on foot</td>
<td>Hyperglycemia causes the immune system to become compromised due to the high sugar concentrations.</td>
</tr>
<tr>
<td>Frequent bladder infections</td>
<td>Hyperglycemia causes the immune system to become compromised due to the high sugar concentrations.</td>
</tr>
<tr>
<td>Tingling &amp; numbness in feet</td>
<td>Nervous system damaged by excess glucose in blood (hyperglycemia). Also damaged by accumulation of abnormal substances such as sorbitol and glycated proteins.</td>
</tr>
<tr>
<td>Blood glucose 325 mg/dL</td>
<td>Insulin resistance</td>
</tr>
<tr>
<td>HTN</td>
<td>Hyperglycemia causing damage to endothelial cells of blood vessels. Thickening and inflexibility of the subendothelial layer causes blood pressure to rise.</td>
</tr>
<tr>
<td>Retinopathy</td>
<td>Hyperglycemia. Excess glucose in the blood causes damage to blood vessels. HTN can cause macular edema leading to retinopathy.</td>
</tr>
</tbody>
</table>


4. **Briefly describe hyperglycemic hyperosmolar nonketotic syndrome (HHNS). How is this syndrome different from ketoacidosis?**

This occurs most often in people who have T2DM. It is distinguished by blood glucose >600mg/dL, serum osmolality >320mOsm/kg of water, and absence of ketoacidosis. Symptoms include polyuria, polydipsia, polyphagia and weight loss. These develop gradually and can be easily over looked. Treatment includes slow rehydration and treating underlying medical problems such as infection. The mortality rate is approximately 15%.

HHNS is different from DKA because with HHNS there is adequate insulin to prevent lipolysis and ketogenesis, but too low of levels to maintain blood glucose levels. It occurs most often in T2DM and in those between 55 and 70 years old. DKA is associated with metabolic acidosis, ketogenesis and occurs most frequently in T1DM. The causes of the two also differ.

Causes of HHNS include dehydration and prolonged hyperglycemia. The causes of DKA include acute illnesses, psychological stress, lack of SMBG, insulin omitted, increased insulin needs with growth spurts, pump malfunction and drug abuse.

Some symptoms of the two also differ. HHNS progresses slowly while DKA is a rapid development. HHNS also is associated with fever and volume depletion while DKA is associated with vomiting, abdominal pain, acetone breath and Kussmaul respirations.

The laboratory findings of HHNS differ from DKA. With HHNS plasma glucose is >600mg/dL, arterial pH > 7.3, serum bicarbonate > 15mEq/L, urine ketones are small, serum ketones are small and serum osmolality > 320 mOsm/kg. With DKA plasma glucose >250mg/dL, arterial pH < 7.0 to 7.3, serum bicarbonate < 10 to 18 mEq/L, urine and serum ketones positive and serum osmolality is variable.

5. **What factors may lead to HHNS? Is Mrs. Douglas at risk?**

Infection and dehydration are factors that could lead to HHNS. Mrs. Douglas is at risk because she has a cut on her foot that has not healed in over two months. She also has frequent bladder infections, increasing her risk for HHNS.

6. **What is the immediate aim of treatment for HHNS? If HHNS is not treated, how would you expect the condition of HHNS to progress?**

The immediate aim of the treatment is to be hospitalized to treat the dehydration and slowly rehydrate and also treat the underlying medical problem such as infection. Insulin may or may not be required to treat the hyperglycemia of the patient.

If HHNS is not treated it can lead to seizures, diabetic coma or death. Other problems such as increased complications associated with CVD, hypertension, retinopathy, nephropathy and neuropathy will develop and continue.

http://www.diabetic-diets.net/hyperosmolar-hyperglycemic-nonketotic-syndrome/

II. **Nutrition Assessment**

A. **Evaluation of Weight/Body Composition**
7. **Calculate Mrs. Douglas’s body mass index (BMI). What are the health implications for a BMI in this range?**

BMI: 70.5kg/1.54m² = 30.4kg/m²

A BMI of 30.4 is considered to be obese. Those who are obese are at higher risk for developing diseases such as diabetes, hypertension and CVD.

B. **Calculation of Nutrient Requirements**

8. **Calculate Mrs. Douglas’s energy needs using the Mifflin-St. Jeor equation. (HINT: use actual weight and an AF and an IF)**

\[
\text{REE} = 10(70.5\text{kg}) + 6.25(154\text{cm}) - 5(71) - 161 = 1152 \text{ kcals}
\]

\[
1152\text{kcals} \times 1.4(\text{activity}) \times 1.2(\text{infection}) = 1935 \text{ kcals}
\]

9. **Calculate Mrs. Douglas’s protein needs. (HINT: remember she has an infection and needs to heal a wound)**

\[
70.5\text{kg} \times 1.2 \text{ g protein} = 85 \text{ g protein}
\]

10. **Is the hospital diet order of 1,200 kcal appropriate? Explain why or why not?**

The hospital diet order of 1,200 kcal is not appropriate because her estimated needs are 1,953 kcals. The 1,200 kcal diet only fulfills 60% of her dietary needs/requirements. Also a typical hospital diet is composed of 20% protein. This would only provide 60g of protein. This is not adequate to meet her needs of 85g. Mrs. Douglas needs the required calories and grams of protein in order to heal and overcome her infection.

C. **Intake Domain**

11. **Using a computer dietary analysis program or food composition table, calculate the kcalories, protein, fat, CHO, fiber, cholesterol, and Na content of Mrs. Douglas’s diet. Fill-in the blanks.**

- kcal = 1342; compared to kcal needs of 1935 (69% of needs)
- protein = 47 g and 13.6% kcal; compared to protein needs of 85g (55% of needs)
- fat = 77 g and 50.7% kcal; compared to fat needs of 30-35% kcal
- Saturated fat = 29 g and 18.7% kcal; compared to SFA needs of <7% kcal
- CHO = 123g and 35.7% kcal; compared to CHO needs of 45-50% kcal

What about consistency of CHO at mealtimes?

Mrs. Douglas did not have any consistency associated with her CHO intake. At breakfast she consumed 14g CHO, lunch 32g CHO, dinner 71g CHO and her evening snack consisted of 6g CHO. Mrs. Douglas needs to spread her CHO intake out more evenly throughout all of her meals.

- fiber = 19 g; compared to fiber needs of 20-35g (54-95% of needs)
- chol = 330mg; compared to cholesterol needs of <200 mg (165% of needs)
- Na = 3928mg; compared to Na needs of <2400 mg (164% of needs)

12. **From the information gathered within the intake domain, list key nutrition problems using the diagnostic term.**

Key nutrient problems within the intake domain include inadequate oral intake, increased nutrient needs due to infection and wound healing, inadequate protein intake, excessive fat intake, inadequate carbohydrate intake, inconsistent carbohydrate intake, inadequate fiber intake and excessive sodium intake.
D. Clinical Domain

13. Compare the patient’s laboratory values that were out of range on admission with normal values. How would you interpret this patient’s labs? Make sure explanations are pertinent to this situation.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Normal Value</th>
<th>Patient’s Value</th>
<th>Reason for Abnormality</th>
<th>Nutritional Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose (mg/dL)</td>
<td>70-110</td>
<td>325</td>
<td>Insulin resistance</td>
<td>Increase physical activity, self-monitor blood glucose, diet consisting of CHO 45-50% total kcals, protein 15-20% total kcals, fat 30-35% total kcals, MUFA 20% total kcals, PUFA 10% total kcals, SFA&lt;7% total kcals, trans fat as low as possible, 20-35g fiber/day, consume mostly whole grains, avoid refined CHO</td>
</tr>
<tr>
<td>HbA1c (%)</td>
<td>3.9-5.2</td>
<td>8.5</td>
<td>Chronic hyperglycemia</td>
<td>Increase physical activity, self-monitor blood glucose, diet consisting of CHO 45-50% total kcals, protein 15-20% total kcals, fat 30-35% total kcals, MUFA 20% total kcals, PUFA 10% total kcals, SFA&lt;7% total kcals, trans fat as low as possible, 20-35g fiber/day, consume mostly whole grains, avoid refined CHO</td>
</tr>
<tr>
<td>Cholesterol (mg/dL)</td>
<td>120-199</td>
<td>300</td>
<td>High LDL levels, inadequate fiber intake, obesity, excessive cholesterol intake</td>
<td>Less than 7% kcals from saturated fat, ≥25g fiber/day, plant sterol/stanol 3-4g/day</td>
</tr>
<tr>
<td>Parameter</td>
<td>Normal Value</td>
<td>Patient's Value</td>
<td>Reason for Abnormality</td>
<td>Nutritional Implications</td>
</tr>
<tr>
<td>----------------------------</td>
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<td>---------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LDL-cholesterol (mg/dL)</td>
<td>&lt;130</td>
<td>140</td>
<td>Age of 71, obesity, high saturated fat diet, diet inadequate in fruits, vegetables and whole grains, excessive intake of cholesterol, inadequate fiber intake</td>
<td>Increase physical activity, less than 7% kcals from saturated fat, decrease trans fat to ≤1% kcals, dietary cholesterol &lt; 200 mg/day, ≥ 25g fiber/day, plant stanol/sterol intake to 3-4 g/day, soluble fiber intake of 8-10 g/day.</td>
</tr>
<tr>
<td>HDL-cholesterol (mg/dL)</td>
<td>&gt;55</td>
<td>35</td>
<td>High saturated fat diet, diet inadequate in fruits, vegetables, whole grains and fiber, age (post-menopause), obesity, high TG levels, high intake of simple sugars</td>
<td>Increase physical activity, weight loss, moderate fat intake of 30-35% total kcals, MUFA 20%, PUFA 10%</td>
</tr>
<tr>
<td>Triglycerides (mg/dL)</td>
<td>35-135</td>
<td>400</td>
<td>Diet high in refined CHO, inadequate amounts of MUFA and PUFA, age (post-menopause), obesity, untreated diabetes,</td>
<td>45-50% of calories from CHO, at least 50% of CHO from whole grains. Decrease simple sugar/refined grain intake, weight loss, moderate fat intake 30-35% total kcals</td>
</tr>
</tbody>
</table>

14. Why wasn’t HbA₁c measured at discharge?
It wasn’t measured at discharge because it is a long term indicator. If it was measured it would show her plasma glucose concentration status from 2-3 months ago not her current status.

15. Compare the pharmacologic differences among the oral hypoglycemic agents.

<table>
<thead>
<tr>
<th>Class</th>
<th>Brand Names (&amp; Generic Names)</th>
<th>Mechanism of Action</th>
<th>Side Effects &amp; Contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>α–Glucosidase inhibitors</td>
<td>Generic: Acarbose, Miglitol, Voglibose</td>
<td>Delays intestinal absorption of glucose</td>
<td>Flatulence, diarrhea, less efficacy frequent dosing. Contraindications: individuals with intestinal diseases, must be taken 3times/day with meals</td>
</tr>
<tr>
<td></td>
<td>Brand: Precose, Glyset, Volix</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biguanides</td>
<td>Generic: Metform Brand: Symlin</td>
<td>Decreases hepatic glucose production, increases insulin uptake in muscles</td>
<td>Transient diarrhea, nausea, bloating, anorexia, flatulence, lactic acidosis. Contraindications: individuals with renal insufficiency, liver failure or treated CHF.</td>
</tr>
<tr>
<td>Meglitinides</td>
<td>Generic: Repaglinide, Nateglinde Brand: Prandin, Starlix</td>
<td>Stimulates insulin secretion in presence of glucose, short acting</td>
<td>Susceptibility to hypoglycemia, frequent dosing</td>
</tr>
</tbody>
</table>
| **Sulfonylureas**  
*First generation* | Generic: Acetohexamide, Chlorpropamide, Tolazamide, Tolbutamide  
*Brand:* Dymelor, Diabinese, Tolase, Orinase | Stimulate insulin secretion | Hypoglycemia  
Contraindications: individuals with renal insufficiency, weight gain |
| --- | --- | --- | --- |
| **Second generation**  
| Generic: Glipizide, Glipizide-GITS, Glyburide, Glimepiride  
*Brand:* Glucotrol, Glucotrol XL, DiaBeta, Micronase, PresTab, Glynase, Amaryl | Stimulate insulin secretion | Hypoglycemia  
Contraindications: individuals with renal insufficiency, weight gain |
| **Thiamedioneszolid** | Generic: Pioglitazone, Rosiglitazone  
*Brand:* Actos, Avandia | Decrease insulin resistance | Weight gain, edema, worsened CHF, most expensive, slow onset of action  
Contraindications: individuals with CHF |

16. From the information gathered within the clinical domain, list possible nutrition problems using the diagnostic term.

Some possible nutrition problems include impaired nutrient utilization, altered nutrition related laboratory values including CHOL, Glucose, BUN, osmolality, HDL, LDL, LDL/HDL ratio, TG, HbA1c, HGB and HCT values and obesity.

E. Behavioral–Environmental Domain

17. Identify at least three factors that may interfere with Mrs. Douglas's compliance and success with her diabetes treatment. Within this domain, list possible nutrition problems.

Mrs. Douglas’ lack of up-to-date information and knowledge about T2DM, at her age she might not be willing to change her undesirable food choices, she may also not be willing to change her lifestyle to include more physical activity and self-monitoring.

Some possible nutrition related problems include food-and nutrition-related knowledge deficit, not ready for diet/lifestyle change, undesirable food choices, and physical inactivity.

III. Nutrition Diagnosis

18. Select two high-priority nutrition problems and complete the PES statement for each.

**PES#1**

Impaired nutrient utilization related to T2DM as evidenced by hyperglycemia, glucose 325mg/dl, HbA1c 8.5%, delayed wound healing of ulcer on left foot, frequent bladder infections, blurry vision (retinopathy) and slight tingling and numbness in feet (neuropathy).

**PES#2**

Increased protein need related to infection and wound healing as evidenced by delayed healing of ulcer on foot (2 months) and frequent bladder infections.

**PES#3**

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23-6
Food-and-nutrition related knowledge deficit related to lack of prior exposure to accurate nutrition-related information/prior exposure to incorrect information as evidenced by pt. verbalizing that she and her sister try to avoid “all starchy foods” due to her sister’s DM and pt. verbalizing that she is following diet and medical advice for 10 years prior (not up to date), no prior knowledge of need for food-and-nutrition-related recommendations and new medical Dx of T2DM.

IV. Nutrition Intervention

19. Write Nutrition Prescription for patient. Include Diet type, kcal level, and key components from the CHO consistent diet.

1935 kcal CHO consistent diet with 45-50% total kcals from CHO, 15-20% total kcals from protein, 30-35% total kcals from fat, SFA<7% total kcals, CHOL < 200mg, MUFA 20% total kcals, PUFA 10% total kcals 20-35g fiber

20. For each of the PES statements that you have written, establish an ideal goal (based on the signs and symptoms) and an appropriate intervention (based on the etiology). Use IDNT manual to label Intervention domains and subclasses; and give details of exactly what you are going to do.

PES #1
Impaired nutrient utilization related to T2DM as evidenced by hyperglycemia, glucose 325mg/dl, HbA1c 8.5%, delayed wound healing of ulcer on left foot, frequent bladder infections, blurry vision (retinopathy) and slight tingling and numbness in feet (neuropathy).

- Goal: Increased utilization of glucose
- Intervention: Nutrition Education- Content: Discuss disease management through diet and lifestyle changes, communicate the relationship of nutrition to T2DM, explain nutrition prescription modifications, instruct on menu planning, CHO counting and CHO consistency.

PES #2
Food-and-nutrition related knowledge deficit related to lack of prior exposure to accurate nutrition-related information/prior exposure to incorrect information as evidenced by pt. verbalizing that she and her sister try to avoid “all starchy foods” due to her sister’s DM and pt. verbalizing that she is following diet and medical advice for 10 years prior (not up to date), no prior knowledge of need for food-and-nutrition-related recommendations and new medical Dx of T2DM.

- Goal: Increase knowledge related to nutrition’s relationship to T2DM, menu planning, CHO counting and CHO consistency
- Intervention: Nutrition Education- Content: Discuss disease management through diet and lifestyle changes, communicate the relationship of nutrition to T2DM, explain nutrition prescription modifications, instruct on menu planning, CHO counting and CHO consistency.

21. Write a concise ADIME note by pulling the key components from you answers. Consider the admission data only (not the 3 and 6 month data). Hand in typed version only.

A: African American female, 71y/o. Ht: 5’0”, Wt. 155lbs. BMI: 30.4 (obese). H&P: Pt. cares for 80y/o sister with T2DM, pt. complains of frequent bladder infections, pt. has unhealed 2-3 cm ulcer on lateral left foot, blurry vision, mild edema, slight tingling and numbness in feet, HTN. Meds: Capoten (captopril), 50 mg PO bid. Temp. 99.2 indicating infection, BP 150/97 indicating HTN, wears glasses for myopia, mild retinopathy, sensation to light touch in feet mildly diminished. Nutrition Hx: Pt. reports “avoids all starchy foods because that’s what was told to sister 10 years ago with her Dx. of T2DM” indicating lack of current and up to date knowledge related to T2DM. Usual dietary intake provided by pt. indicates Pt. estimated intake of 1,342kcals inadequate compared to estimated kcal needs of 1935 (69% of needs) (REE= 10(70.5kg)+6.25(154cm)-5(71)-161= 1152 kcal*1.4(activity)*1.2 (infection)= 1,935total kcals needed) Pt. estimated intake of protein(47g) inadequate compared to estimated needs of 85g protein. (70.5kg * 1.2g protein = 85 g protein), estimated intake of fat (77g) excessive compared to estimated need of 65g-75g ( 1935kcals*.3= 65; 1935*.35=75g), estimated % intake of SFA (18.7%) excessive compared to sufficient <7%, estimated intake CHO 123g and 35.7 % kcal compared to estimated desired CHO needs of 218g- 242g, 45-50% kcal, inadequate estimated fiber intake of 19
g compared to fiber needs of 20-35g, excessive estimated CHOL intake of 330mg compared to cholesterol needs of <200 mg, excessive estimated Na intake of 3928mg compared to Na needs of <2400 mg, CHO inconsistency estimated 14g CHO breakfast, lunch 32g CHO, dinner 71g CHO, evening snack 6g CHO, diet high in refined CHO (white bread, potatoes, cornbread, vanilla wafers, orange juice), lacking in adequate amounts of fruits, vegetables, whole grains. Osmolality 315 mmol/kg/H2O, Glucose 325mg/dl indicating insulin resistance, BUN 26mg/dl, CHOL 300mg/dl, HDL 35mg/dl, LDL 140mg/dl, LDL/HDL ratio 4.0, TG 400, HbA1c 8.5%, HGB 9.9g/dl, HCT 30.4% Dx. cellulitis, T2DM.

D:
1. Impaired nutrient utilization related to T2DM as evidenced by hyperglycemia, glucose 325mg/dl, HbA1c 8.5%, delayed wound healing of ulcer on left foot, frequent bladder infections, blurry vision (retinopathy) and slight tingling and numbness in feet (neuropathy).
2. Food-and-nutrition related knowledge deficit related to lack of prior exposure to accurate nutrition-related information/prior exposure to incorrect information as evidenced by pt. verbalizing that she and her sister try to avoid “all starchy foods” due to her sister’s DM and pt. verbalizing that she is following diet and medical advice for 10 years prior (not up to date), no prior knowledge of need for food-and nutrition-related recommendations and new medical Dx of T2DM.

I: 1935 kcal CHO consistent diet with 45-50% total kcals from CHO, 15-20% total kcals from protein, 30-35% total kcals from fat, SFA<7% total kcals, CHOL < 200mg, MUFA 20% total kcals, PUFA 10% total kcals 20-35g fiber

1. Intervention: Nutrition Education- Content: Discuss disease management through diet and lifestyle changes, communicate the relationship of nutrition to T2DM, explain nutrition prescription modifications, instruct on menu planning, CHO counting and CHO consistency.
   Goal: Increased utilization of glucose
2. Intervention: Nutrition Education- Content: Discuss disease management through diet and lifestyle changes, communicate the relationship of nutrition to T2DM, explain nutrition prescription modifications, instruct on menu planning, CHO counting and CHO consistency.
   Goal: Increase knowledge related to nutrition’s relationship to T2DM, menu planning, CHO counting and CHO consistency

M/E:
1. SMBG 1-4times/day; 3-4 days/wk
   Outcome: Blood Glucose 70-100mg/dl
2. Complete fasting lipid profile every three months
   Outcome: CHOL 120-199 mg/dl, HDL >55 mg/dl, LDL<130 mg/dl, LDL/HDL ratio <3.22, Apo A 101-199 mg/dl, Apo B 60-126 mg/dl
3. Pt. following nutrition prescription, provides diet journal at next visit
   Outcome: pt. following 1935 kcal CHO consistent diet with 45-50% total kcals from CHO, 15-20% total kcals from protein, 30-35% total kcals from fat, SFA<7% total kcals, CHOL < 200mg, MUFA 20% total kcals, PUFA 10% total kcals 20-35g fiber
4. HbA1c every 3 months
   Outcome: HbA1c 3.9-5.2%
5. HGB and HCT every three months
   Outcome: HGB 12-15g/dl, HCT 37-47%
6. Wt weekly
   Outcome: Pt. lose 1-2 lb/wk to reach desired wt. loss of 25-30lbs.
7. Electrolytes every three months
   Outcome: Serum potassium within standard range of 3.5-5.0mEq/L, serum sodium within standard range of 135-145mEq/L, serum chloride within standard range 98-106mEq/L, serum calcium within standard range of 8.7-9.2mg/dL and serum phosphate within standard range of 2.5-4.5mg/dL.
8. BP every three months
   Outcome: BP < 130/85 mmHg
9. Check progress of ulcer on lateral left foot daily
   Outcome: ulcer heals within 4-5 weeks
10. Check progress on sensation of light touch in hands and feet every three months
    Outcome: Mildly diminished sensation in feet maintains or improves, sensation in hands maintains
V. Meal Planning

CHO Consistent MENU ASSIGNMENT

As a dietitian, you will often be asked to put together a “menu” for someone that is required to be on a modified diet. Given parameters, a dietitian should be able to plan menus for a wide array of modified diets for individuals and/or groups throughout the lifespan. It is important to be able to navigate through food choices presented in a variety of settings given the fact that we expect people to do the same!

- Create a Meal Pattern for your client. The meal pattern must be included in table form – for the day and broken down by B-L-D and HS snack. Diet composition should be: 15-20% PRO, 45-50% CHO, and 30 – 35% FAT. The carbohydrate content at each meal should be the same (consistent) and the carbohydrate at the snack should be no more than half the carbohydrate content of a meal.

- Plan a 1-day selective menu for the hospital that will be ordered for your client. Include all accompaniments and condiments e.g. jelly, salad dressings, sauces, syrups, etc. remember, you need to think about a beverages! Use the menu parameters as a guide. Think about types of condiments and foods allowable on diabetic menu.

- Using ESHA, perform a nutrient analysis. Include your last name in the title of the diet. Include the pie chart that details the composition of the diet and breakdown of types of fat. Print the Bar chart that includes the micronutrient levels. Analyze the menu for: Kcal, CHO, PRO, FAT, sat fat, cholesterol, fiber, sodium, calcium, iron, potassium, & Vitamin C.

- Circle/highlight food choices on your written menu. Remember to follow your Meal Pattern!

- Summarize your findings narratively. Reflect your interpretation of the nutritional adequacy of your menu.

- Submit your menu and analysis printouts in a labeled folder.
The menu planned is nutritionally adequate. It fulfills all of the requirements given. It contains 1967 total kcals which falls in the range of 1950-2050 kcals given by the parameters. It contains the proper percentages of total kcals of each macronutrient. The menu provides 19.8% total kcals from protein, 49.6% total kcals from CHO and 30.5% total kcals from fat. The CHO content of each meal was consistent and the CHO content of the HS snack was no more than half of the CHO content of a meal. Breakfast contained 74g CHO, lunch included 72g CHO, dinner incorporated 74g CHO and the HS snack included 35g CHO.

Total fat was adequate in the menu. It contains 69g of fat or 30.5% total kcals. These 69g of fat is composed of 10g SFA or 4.4% total kcals, 34g MUFA or 14.7% total kcals, and 20g PUFA or 8.8% total kcals. These amounts fall within the recommended intake. It is recommended that SFA <7% total kcals, MUFA up to 20% total kcals and PUFA up to 10% total kcals. The CHOL intake of this menu is also sufficient because it supplies 79mg CHOL while the allowed/recommended dietary intake is 300mg CHOL. This is only 26% of the allowed/recommended amount.

This menu provides sufficient amounts of fruits, vegetable and whole grains. This allows for there to be sufficient dietary fiber consumed. The menu provides 34g of dietary fiber. This is sufficient because it supplies within the recommended range intake of 20-35g of fiber.

This diet is sufficient in Vitamin C, iron and magnesium because it has 248%, 190% and 190% of the RDA respectively. This menu is also sufficient in calcium and potassium because it has 147% and 93% of the AI respectively. Although there is only 93% of magnesium, this is still said to be adequate because also long as pts are consuming 75% of the dietary needs it is an adequate diet. Those nutrients that are over 100% are still sufficient and not excessive because none of them surpass the tolerable upper limit.