

NUT 116AL – CASE STUDY #2 - CVD
Due 12/5/14

Instructions:

Review the pt's medical record below. Answer each question and show your calculations for each, **if required. Reference all calculation formulas with the text and page number from PR (i.e., PR p. ____).** You must type your answers! If not, questions will not be graded and you will receive 0 points. CS #2 is worth 50 points.

Medical Record Information:

Present Illness: MW is a 42 yo engineering technician referred to his family physician for evaluation of arterial hypertension detected during a routine evaluation at an employment site wellness fair & health screening. The BP reading was confirmed by repeat measurements over the course of one month. Pt relates no prior history of elevated BP but had been warned to "watch his weight." Pt denies current symptoms of chest pain, SOB, edema, or visual symptoms. Pt smokes one pack of cigarettes a day; holds a desk job and plays tennis one or twice a week. Pt's body weight has been increasing by 2-3 pounds per year for the last ten years.

Past Medical History: Pt had measles, mumps, and chicken pox in childhood and an appendectomy approximately 20 years ago. No hx of rheumatic fever, DM, or kidney disease.

Family History: Father died at age 48 from an acute MI; mother is being treated for essential hypertension.

Social History: Married with two children; wife works as a legal secretary.

Review of Systems: Patient has no complaints except for C/O occasional mild tension headaches.

Physical Exam: Somewhat overweight white male; 5 ft. 10 in., 190 #, small frame, waist circumference 96 cm. UBW 170 (10 years ago). BP 155/103 right arm, sitting, without postural changes. P 76 and regular. R 15. Neck without thyromegaly, venous distention, or bruits. Lungs clear to P&A. Heart: regular rhythm without murmur or gallop. Abdomen slightly obese, soft and without bruit. Extremities revealed no edema. Screening neurologic exam, including mental status exam, is completely WNL.

Laboratory: Hct: 48%, Hgb 16 g/dL, FBG 96 mg/dL, BUN 15 mg/dL
Lipid panel (fasting): T-cholesterol 210 mg/dL, LDL 147 mg/dL, HDL 38 mg/dL, TG 150 mg/dL.
U/A negative for glucose, protein and blood.
EKG: normal sinus rhythm with rate of 80, normal intervals and no evidence of ischemia, strain, or hypertrophy. CXR unremarkable.

Rx: Lasix[®] 20 mg daily, Lipitor[®] 20 mg daily

Impression: Essential hypertension with elevated T-cholesterol, LDL, and low HDL in a 42 yo overweight, otherwise healthy male with a positive family history of CHD.

Plan: Nutrition outpatient clinic referral for instruction in 1,500 kcal, 2 g Na, NCEP TLC diet. Encourage cessation of smoking and increase in exercise. RTC for BP and lipid panel check in 6 weeks.

24 Hr. Diet Recall

Client reports that this pattern is fairly typical of his usual weekday intake:

Breakfast

Milk, 2%, 8 oz.
Eggs, 2 poached
Toast, wheat, 2 slices
Butter, 1 Tbsp.
Table salt, 1/8 tsp.

McDonald's Lunch

Diet Coke
Quarter Pounder, with cheese
French fries, small

Dinner

Milk, 2%, 8 oz.
Potato, baked, 1 med.
Sour cream, 2 Tbsp.
Chicken breast w/ skin, baked 6oz
Broccoli, 1/2 cup
Tossed salad, 1 cup
Lettuce, 1/2 tomato
Ranch Dressing, 2 Tbsp.
Roll, 1 small
Butter, 1 Tbsp.
Ice Cream, 10%, 1 cup
Table salt, 1/8 tsp.

Questions:

1. Conduct a nutrient analysis of the 24 hr. recall above, using the *Food Processor* program on the UC Davis website: <http://nutrition.ucdavis.edu/admin/remote/> Connect to the *Food Processor Remote Desktop Server* to access the database. For a review of how to use *Food Processor*, click on the *Nutrition 112 Lab* link. After you've input MW's 24 Hour Recall, select "Spreadsheet" from the "Reports" menu. Remember, to print all food items, select the "+" for the day and meals for them to show up on your spreadsheet report (all foods entered must be included in the print-out). The spreadsheet is what you will save on your desktop and print out and turn in (you may print 4 per page to save paper). Please hand-write at the top "MW's 24-Hour Recall." Complete the table below and attach the data print-out at the end of the Case Study. Briefly discuss the overall adequacy of MW's diet in the space below (partial credit will be given for providing only the daily totals without the print-out). (5 pts)

Total calories:	2509.43(kcal)	
Total fat:	134 grams	48.06 % of kcals:
Saturated fat:	57.34grams	20.56 % of kcals:
Monounsaturated Fat:	26.99grams	9.68 % of kcals:
Polyunsaturated Fat:	17.21grams	6.17 % of kcals:
Carbohydrate:	209.41grams	33.38 % of kcals:
Protein:	116.51grams	18.57 % of kcals:
Fiber:	16.23grams	
Cholesterol:	755.19 mg	
Sodium:	3470.98mg	
Potassium:	2920.29 mg	

Calculations on last page

Adequacy of MW's diet:

MW' diet contains high level of fat (152.67% recommendation),saturated fat (203.87% recommendation) protein (168.99 %recommendation) cholesterol (251.73% recommendation) and sodium (231.40% recommendation)

Inadequate levels of fiber , folate ,biotin, water, magnesium , Iodine, potassium, Zinc, Omega-3, Omega-6 and Vitamins 1, B12, D, E

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2. Make changes in the diet in order to make it consistent with a 2500 kcal TLC dietary plan and summarize your changes below. **Highlight** the changes that you have made on the “Spreadsheet” print-out for MW’s modified diet. Please hand-write at the top “MW’s 2500 kcal TLC Diet.” Complete the table below and **attach the data print-out** at the end of the Case Study. Briefly summarize the changes you’ve made in MW’s diet in the space below (partial credit will be given for providing only daily totals without the print-out). (5 pts)

Total calories:	2518 .61 calories	
Total fat:	92.48 grams	33.05 % of kcals:
Saturated fat:	19.06 grams	6.80 % of kcals:
Monounsaturated Fat:	29.81 grams	10.65 % of kcals:
Polyunsaturated Fat:	15.60 grams	5.58 % of kcals:
Carbohydrate:	320.02 grams	50.82 % of kcals:
Protein:	123.14 grams	19.56 % of kcals:
Fiber:	35.68 grams	
Cholesterol:	196.63 mg	
Sodium:	2229.25 mg	
Potassium:	6525.70 mg	

Calculations on last page

Summary of changes made:

- **Dairy:** exchanged 2% for skim milk w/add vit A &D, exchange sour cream for non fat Greek yogurt.
- **Grains:** exchanged roll with whole wheat roll
- **Fruits;** Added apple banana, grapes, watermelon (low in fat, sodium and kcals; no cholesterol; high in folate, potassium, and vitamin C; more fiber)

- **vegetables ;** added avocado and black olive into salad, added Green corn salad, nuts, almonds. Exchange French fries for salad fruit walnut (reduce saturated fat, increase monounsaturated, polyunsaturated fat vitamin E, fiber)

- **Butter:** exchanged butter for alternative spreads – reduced-fat peanut butter (less fat and kcals)

- **Meat/poultry :** exchange whole egg for egg white, exchanged chicken breast with skin for baked salmon, exchange cheese burger Quarter Pounder for burger Quarter Pounder (less cholesterol, saturated fat, increase intake of omega 3 vitamin B1)
- **Drinks:** exchange diet coke for orange juice (increase vitamin C)

- **sweet;** reduce portion size of ice cream, from 1 cup to ¼ cup

- **Dressings:** exchanged regular ranch dressings for reduced fat ranch dressing
- **table salt** exchange table salt for salt substitute (reduce sodium intake and increase potassium intake)

3. Compare the fat and cholesterol in your modified diet to the target goals based on a caloric intake of 2,500 kcals/day. (4 pts)

	TLC Goal (% of kcals in diet or grams chol.)	<i>MW's Modified Diet</i> (% of kcals in diet or grams chol.)	TLC Target grams in 2,500 kcals/d	<i>MW's Modified Diet</i> (grams)
Total fat:	25-35% kcals/day	33.05 % of kcals	69.4–97.2 g/day	92.48 g
Saturated fat:	< 7% kcals/day	6.80 % of kcals:	< 19.4 g/day	19.06 g
Monounsaturated fat:	≤ 20% kcals/day	10.65% of kcals	≤ 55.6 g/day	29.81 g
Polyunsaturated fat:	≤ 10% kcals/day	5.58% of kcals	≤ 27.8 g/day	15.60 g
Cholesterol:	< 0.2 g/day	1.97 g/day	< 0.2 g/day	1.96 g

4. Interpret the results of MW's lipid panel, identifying which of the lipids are elevated based on the NCEP ATP III Guidelines. List the desired therapeutic goal (TLC goal parameter) for LDL cholesterol for MW, based on the NCEP guidelines. (3 pts)

Parameter	MW's Value in mg/dL	Interpretation based on NCEP classification	Therapeutic goal
Total Cholesterol	210 mg/dl	Borderline high (200-239 mg/dL)	
LDL Cholesterol	147 mg/dl	Borderline High (130 – 159 mg/dL)	<130 mg/dl
HDL Cholesterol	38mg/dl	Low; a major risk factor for Heart Disease (≤ 40 mg/dL)	
Triglycerides	150 mg/dl	Borderline high (150-199 mg/dl)	

5. List 3 food choices that together will provide 1600 mg of potassium and provide no more than a total of 300 kcals. The food choices should be reasonable foods and serving sizes that could be used to recommend to a client that needs to increase potassium intake due to use of a potassium wasting diuretic. (3 pts)

<u>Food</u>	<u>Portion size</u>	<u>mg K provided</u>	<u>kcal provided</u>
Potato	1 medium	926 mg	163 kcal
Nonfat milk	1 cup	380 mg	83 kcal
apricot	1 /4 cup	380 mg	20 kcal
		Total =1686 mg	Total =266 kcal

6. List & number MW's risk factors for CHD, based on the presentation data from his medical record. (2 pts)

<p>1. <u>Family History of premature CHD:</u> Father died at age 48 from an acute MI Mother is being treated for essential hypertension</p> <p>2. <u>Hypertension:</u></p>
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- Blood Pressure $\geq 140/90$
- RB's Blood Pressure = 155/103

3. Smoking:

- Nicotine decreases oxygen to the heart; increases blood pressure, heart rate, and blood clotting
- RB currently smokes one pack of cigarettes/day

4 Low Levels of HDL-Cholesterol:

- Risk factor if HDL-Cholesterol is < 40 mg/dL
- RB's HDL-Cholesterol = 38 mg/Dl

5 Life habit risk factors:

- Overweight BMI (PR 2009 P18): $86.36 \text{ kg} / (1.78\text{m})^2 = 27.26 \text{ kg/m}^2$
Overweight stage (PR p. 18): BMI = 25.0 - 29.9 kg/m^2
- Atherogenic diet based on his 24 hour recall

7. What is metabolic syndrome & does MW meet the criteria? Why or why not? (2 pts)

Metabolic Syndrome is classified as a having at least three of the following five risk factors. A combination of these medical conditions increases the risk for CHD, Type 2, DM, and CVD (stroke).

Factors: (NTP p. 303)

1. Raised Abdominal Obesity: NO
 - Waist circumference (men) > 102 cm (>40 in)
 - RB's waist circumference = 96cm)
2. Raised Triglycerides: No
 - TG >150 mg/dL
 - RB's TG = 150 mg/dL
3. Reduced HDL-Cholesterol: YES
 - Men < 40 mg/dL
 - RB's HDL-Cholesterol = 38 mg/dL
4. Raised Blood Pressure: YES
 - BP $\geq 130/\geq 85$ mmHg
 - RB's BP = 155/103
5. Raised Fasting Plasma Glucose (Insulin Resistance): NO
 - Fasting Plasma Glucose ≥ 100 mg/dL
 - RB's Fasting Plasma Glucose = 96 mg/dL

TW does not meet three of the five criteria for Metabolic Syndrome, so he does not have metabolic syndrome .

8. How do each of MW's prescribed medications work? What effect will these medications have on his nutritional care? Refer to the medication information in the NTP or PR texts or <http://www.pdr.net> (online Physician's Desk Reference). Cite the resource used for each drug. (4 pts)

Lasix®

Lasix (*furosemide*) is a prescribed loop diuretic medication that inhibits Chloride and Sodium from being absorbed in the loop of Henle, distal, and proximal tubules. (PDR)

- Lasix increases urine output, which decreases blood volume. (NTP p. 291)
- Lasix treats edema related to renal disease, nephrotic syndrome, liver cirrhosis, and congestive heart failure. Lasix can be used for acute pulmonary edema, along with other types of therapies. This medication can be used by adults, with antihypertensive medications, to treat hypertension. (PDR)
- This medication will affect WT if he combines it with medications. (PDR)
- Lasix effects include excessive electrolyte and fluid loss. For Diabetics, blood glucose could increase, which would disturb urine glucose tests. (PDR)
- WT should be aware to not combine this medication with other drugs that raise blood pressure, because he is hypertensive. (PDR)
- Possible side effects: hypokalemia, hyperlipidemia, hypertriglyceridemia, hypercholesterolemia, and glucose intolerance. (NTP p. 291)
- If there is GI stress, take Lasix with water and food; also if ordered by a doctor, follow a low sodium and high potassium diet. (PR p. 154)
- Nutrient interactions: alcohol should be avoided when taking Lasix. (PR p. 154); and avoid natural licorice (NTP p. 291)
- Nutritional side effects of Lasix include appetite loss, GI stress, and dry mouth; WT is not experiencing any of these side effects. (PR p. 154)

Lipitor®

Lipitor is an HMG-CoA reductase inhibitor that decreases total cholesterol, LDL, apolipoprotein B, and TG levels and to increase HDL levels and in prevention of cardiovascular disease (PDR)

-May cause adverse reaction of Nasopharyngitis, arthralgia, diarrhea, diabetes, pain in extremity, urinary tract infection, dyspepsia, nausea, musculoskeletal pain, muscle spasms, myalgia, insomnia (PDR)

-Lipitor interact with excessive amount grapefruit juice (more than 1 quart/day), Nutrient interactions: alcohol should be avoided when taking it (PR).

WT should ask doctor if he combine this medication with other drugs (PDR)

You assess MW's knowledge of a low-sodium, NCEP TLC diet as being limited to "just don't add any salt to food and avoid fried foods." He also tells you that he dislikes nonfat milk. He knows that he needs to make some changes, but did not feel like he knew what to do on his own. After discussion with you (the RD) using motivational interviewing techniques, the client is now verbalizing confidence to try to make some changes. Some mutually agreeable goals are set: he usually eats fast food for lunch but is willing to eat in the work cafeteria 2-3 times/wk, he agrees to substitute fruit for 1 or 2 high calorie foods each day, and he would like to make time to exercise >30 min 3 days/wk.

- 9 List and number 3 major teaching points (**dietary** advice) that you will need to discuss with MW in order for him to understand and follow a 2400 mg Na diet. (3 pts)

1. Avoid canned, convenience, or processed foods because these are usually high in sodium. Try using fresh fruits, vegetables, and meat instead.
2. Avoid using any types of salt when cooking or to season foods, including: sea salt, garlic salt, onion salt, etc. Try using alternatives such as lemon, garlic, vinegar, pepper, herbs, and spices or salt alternative instead.
3. Avoid high sodium foods by reading the nutrient labels on every item. Try looking for items that are "salt-free" (unsalted popcorn, pretzels, and chips). Also, try looking for items that are "reduced-salt" (low-sodium versions of items such as peanut butter, cheeses, crackers, vegetable sauces, and soups).

- 10 List and number 3 major teaching points (**dietary** advice) that you will need to discuss with MW in order for him to understand and follow the NCEP TLC diet. (3 pts)

- 1 Avoid fried, high calorie meat dishes (ie. chicken-fried steak). Try eating leaner meats, such as chicken without skin. On a 1500 kcal NCEP TLC diet, protein should be 15% of the daily calories, which is approximately 75 – 87 grams of protein/day. Also, cook meats without fat – grilling and broiling.
2. Avoid refined carbohydrate choices (hamburger bun, white bread, dinner roll), and try whole wheat bread options because this will increase vitamins, minerals, and fiber.
3. Add ≥ 1 serving of fruits and vegetables such as beans, apples to every meal because these are low in fat, sodium, and kcals; also high in soluble fiber which will help decrease cholesterol level

11 MW is Jewish and resides in the SF Bay Area. Describe and explain Kosher dietary laws and any dietary restrictions you would need to consider when counseling MW. (4 pts)

Kosher dietary law is dealing with what foods Jewish can and cannot eat and how those foods must be prepared and eaten and kosher food describes food that meets these standards. A person keeps kosher if he or she follows Jewish Dietary Laws. Jewish Dietary Laws are derived from Biblical laws and rabbinical extensions (KJDL)

General rules of Kosher dietary law.

1. Certain animals may not be eaten at all such as animals that do not chew the cud (e.g. pig); animals that do not have cloven hooves (camel,hare),shellfish, fish do not have both scale and fins. This restriction includes the flesh, organs, eggs and milk of the forbidden animals. (KJDL)
2. Of the animals that may be eaten, the birds and mammals must be killed in accordance with Jewish law. (KJDL)
3. All blood must be drained from meat and poultry or broiled out of it before it is eaten.
4. Certain parts of permitted animals may not be eaten. (KJDL)
5. Fruits and vegetables are permitted, but must be inspected for bugs (which cannot be eaten) (KJDL)
6. Meat (the flesh of birds and mammals) cannot be eaten with dairy. Fish, eggs, fruits, vegetables and grains can be eaten with either meat or dairy. (According to some views, fish may not be eaten with meat (KJDL)
7. Grape products made by non-Jews may not be eaten (KJDL).

12 MW has been referred to your Nutrition Clinic by his primary care physician for instruction on a 1,500 kcal, 2.4-g Na, TLC diet. Summarize your observations, assessment and plan of action in a SOAP note. Base your note on the pertinent information given in the presentation data, 24 hr recall, and questions above. It is important that you assess whether you feel that the current referral diet Rx (1,500 kcal, 2-g Na, NCEP TLC diet) is realistic and appropriate for your client's needs. Remember that this is an outpatient setting and the client is referred to you for counseling, which you will begin on this visit. Attach the SOAP note below and a separate sheet with all calculations as an attachment (the calculations may be hand-written). (12 points)

S:

Wt 42 yo male referred to physician for evaluation of arterial HTN. Pt relates no prior history of elevated BP but had been warned to watch his weight. Pt smokes one pack of cigarette a day. Pt holds a desk job and plays tennis once or twice a week. Family Hx of CHD: mother currently has hypertension and father died from an acute MI (age 48). For the past 10 yrs, Pt has gained 2-3#/year. Pt suffers from occasional mild tension headaches. His 24 hour diet recall shows he consume diet that contains high amount of cholesterol, saturated fat.

O:

Anthropometric Measurements: Ht: 5'10" (86.36kg,) wt: 190# (1.78m) BMI: 27.26 (overweight)

IBW: 166 lbs \pm 10% BP: 155/103 (hypertension, stage 1)
Labs: total cholesterol:210 mg/dL(borderline high) , LDL: 147 mg/dL(borderline high),
HDL: 38 mg/dL(low), TG: 150 mg/dL (borderline high)

Rx; Lasix 20mg daily,Lipitor 20mg daily

Estimated kcal needs for maintenance: 2596 kcal

Estimated protein needs ; 69-86g

Estimated fluid needs ;2590.8ml

Diet Order; NCEP TLC 1500 kcal/day, 2.4 g Na/day diet

A:

- (NB-1.7) Undesirable food choices related to diet contains too much saturated fat and cholesterol as evidence by 24 hour food recall
- (NI-5.62) Excessive fat intake related to Food- and nutrition-related knowledge deficit as evidence by high level of T-cholesterol ,LDL,TG and hypertension status

P:

Motivational interviewing to help WT in making changes in food-related behavior.
Nutrition education on hypertension, CVD, obesity, consequence of unhealthy diet.
Given handout about healthy recipe that contains high amount of fiber, good fat, less cholesterol and saturated fat.
Encourage cessation of smoking
Continue TLC 1500 kcal, 2.4 g Na diet
Encourage adequate fluid intake (2.6 L fluid/day)
Encourage increase of physical activity (>30 minutes 3 days/week)

CALCULATIONS:

1. WT's 24-Hour Recall:

- Kcal: 2509.43

- Total Fat: $1202.28 \text{ kcal} / 9 \text{ kcal/g} = \mathbf{134 \text{ g total fat}}$
% of kcal total fat: $1202.28 / 2509.43 \text{ kcal} = \mathbf{48.06 \% total fat}$

- Saturated Fat: $516.07 \text{ kcal} / 9 \text{ kcal/g} = \mathbf{67.34 \text{ g saturated fat}}$
% of kcal saturated fat: $516.07 \text{ kcal} / 2509.43 \text{ kcal} = \mathbf{20.56 \% saturated fat}$

- Monounsaturated Fat: $\mathbf{26.99 \text{ g}} \times 9 \text{ kcal/g} = 242.91 \text{ kcal monounsaturated fat}$
% of kcal mono fat: $242.91 \text{ kcal} / 2509.43 \text{ kcal} = \mathbf{9.68 \% monounsaturated fat}$

- Polyunsaturated Fat: $\mathbf{17.21 \text{ g}} \times 9 \text{ kcal/g} = 154.89 \text{ kcal polyunsaturated fat}$
% of kcal poly fat: $154.89 \text{ kcal} / 2509.43 \text{ kcal} = \mathbf{6.17 \% polyunsaturated fat}$

- Total Carbohydrate: $\mathbf{209.41} \times 4 \text{ kcal/g} = 837.64 \text{ kcal total carbohydrate}$
% of kcal total carb: $837.64 \text{ kcal} / 2509.43 \text{ kcal} = \mathbf{33.38 \% total carbohydrate}$

2. RB's Modified TLC Diet (2500 kcal):

- Kcal: 2518.61 kcals

- Total Fat: $832.31 \text{ kcal} / 9 \text{ kcal/g} = \mathbf{92.48 \text{ g total fat}}$
% of kcal total fat: $832.31 \text{ kcal} / 2518.61 \text{ kcal} = \mathbf{33.05 \% total fat}$

- Saturated Fat: $171.54 \text{ kcal} / 9 \text{ kcal/g} = \mathbf{19.06 \text{ g saturated fat}}$
% of kcal saturated fat: $171.54 \text{ kcal} / 2518.61 \text{ kcal} = \mathbf{6.8 \% saturated fat}$

- Monounsaturated Fat: $\mathbf{29.81 \text{ g}} \times 9 \text{ kcal/g} = 268.29 \text{ kcal monounsaturated fat}$
% of kcal mono fat: $268.29 \text{ kcal} / 2518.61 \text{ kcal} = \mathbf{10.65 \% monounsaturated fat}$

- Polyunsaturated Fat: $\mathbf{15.60} \times 9 \text{ kcal/g} = 140.4 \text{ kcal polyunsaturated fat}$
% of kcal poly fat: $140.4 \text{ kcal} / 2518.61 \text{ kcal} = \mathbf{5.58 \% polyunsaturated fat}$

- Total Carbohydrate: $\mathbf{320.02 \text{ g}} \times 4 \text{ kcal/g} = 1280.08 \text{ kcal total carbohydrate}$
% of kcal total carb: $1280.08 \text{ kcal} / 2518.61 \text{ kcal} = \mathbf{50.82 \% total carbohydrate}$

3. TLC Target Grams: based on 2,500 kcal/day

- Total Fat: 2500 kcal x 25% = 625 kcal / 9 kcal/gram = 69.4 grams
2500 kcal x 35% = 875 kcal / 9 kcal/gram = 97.2 grams
TLC Target of total fat = **69.4 grams/day – 97.2 grams/day of total fat**
- Saturated Fat: 2500 kcal x 7% = 175 kcal / 9 kcal/gram = 19.4 grams
TLC Target of saturated fat = < **19.4 grams/day of saturated fat**
- Monounsaturated Fat: 2500 kcal x 20% = 500 kcal / 9 kcal/gram = 55.6 grams
TLC Target of mono fat = **≤ 55.6 grams/day of monounsaturated fat**
- Polyunsaturated Fat: 2500 kcal x 10% = 250 kcal / 9 kcal/gram = 27.8 grams
TLC Target of poly fat = **≤ 27.8 grams/day of polyunsaturated fat**

11. SOAP Note:

- Height: 5'10" (70" x 2.54 cm = 177.8 cm = **1.78 m**)
- Weight: 190# (190# / 2.2 kg = **86.36 kg**)
- BMI (PR 2009 P18): 86.36 kg / (1.78m)² = **27.26 kg/m²**
Overweight stage (PR p. 18): BMI = 25.0 - 29.9 kg/m²
- IBW: Hamwi equation (pr. 48) = 106 lbs for 5' + 6 lbs for every inch above 5'
Height: 5'10" = 106 lbs + (6lbs x 10 in) = **166 lbs ± 10%**
166 lbs / 2.2 = **75.45 kg**
- %IBW: 190# / 166# = 1.12 → patient is **114% IBW**
- Energy Requirement (NTP p.242):
EER=TEE
EER=662-9.53xage+PAx(15.91xweight+539.6x height)
=662-9.53x 42+1x(15.91x 86.36+539x 1.78cm) =**2596 kcal**
- Protein Requirement (PR 2009 p. 10): 0.8 – 1.0 g/kg/day
86.36 kg x (0.8 – 1.0 g/kg/day) = **69 – 86 g protein/day**
- Fluid Requirement: Wt(kg)x30ml
= 86.36 kg x 30 ml = **2590.8ml**

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