

## CLINICAL WORKSHEET #2

### Nutrition Support In:

### Extended Care Facilities, HIV Disease, and Thermal Injury

#### Purpose(s)

1. To complete nutrition assessment, diagnosis, and intervention for a case patient.
2. To practice the application of clinical judgment. *Note:* When using “Clinical Judgment” there may be no “one” right answer to most of the questions asked, therefore it is important to explain or justify your answers.
3. To advance assessment and diagnosis skills.

#### General Guidelines

1. Complete two of the case studies in the worksheet
2. Worksheets must be completed electronically
3. Upload the cases in Learning Suite in the assignment section.
  - a. The worksheets must be uploaded as a Word document (.doc or .docx)
  - b. Name file LastName\_FirstName\_Worksheet\_2 For example if my name was John Doe the file would be names Doe\_John\_Worksheet\_2
4. Graded assignments will be returned, with comments, via Learning Suite

## **Sources for completing worksheet.**

Assume these are the sources available:

- Nutrition Care Manual -- Adult and Pediatric (online)
- IDNT Manual
- Any textbooks from NDFS courses
- ADA Evidence Analysis Library (online) and noted journal articles
- Class Lecture Notes from any NDFS course
- Websites for formula companies (e.g. Nestle, Mead Johnson, Abbot)

## **Citations.**

List sources used at the end of the case and cite sources as appropriate throughout worksheet. Cite works as indicated in the student handbook.

## **Points**

- Each case is worth 12.5 points a total of 25 points for the full worksheet.

Choose **TWO (2)** of the three case studies to complete

## Case #1: Enteral Feedings at an Extended Care Facility with Decubitus Ulcers

### Hospital Admission

**Social:** DH; 86 year old female resides at Shady Oaks ECF

ECF Feeds: Intermittent tube feeding; 1 can Osmolite (237 ml) QID (4 X day) through a PEG.

**Admitting diagnosis:** fever of unknown origin and acute unresponsiveness.

**Other:** Stage III decubitus ulcers in the sacral area aggravated by bouts of diarrhea and fecal incontinence.

**Ht:** 5'0"

**Wt:** 89 lb

**Labs:** Albumin of 2.8 gm/dl.

### Section 1: Nutrition Assessment

*Complete a Nutrition Assessment using the information available. Use the IDNT book as a guide for indicators to assess and document. While the first worksheet prompted you on areas to assess, you are to now use your judgment in making a Nutrition Assessment. You will be scored on the appropriateness of assessment areas and your assessment of those areas.*

To help you get the assessment started completed the following few questions

1. Calculate DH's tube feeding prescription per day:

TF Order	948 mL Osmolite, 1 can (237 mL) QID
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Kcals	<b>1000 kcal</b>
Protein g	<b>42 g</b>
Free fluid ml or cc	<b>796 mL</b>
Vitamin and mineral intake in general. i.e. what percent of vitamin/Minerals ~100% of most; 50-60% of most etc.	<b>70% of most vitamins and minerals meet the RDA.</b>

2. Calculate comparative standards. Show equation calculations and justify equations, weights, and factors used to calculate comparative standards. e.g. did you use HBE, Kcals/Kg, or another equation and why. What weight did you use IBW, Actual Wt, etc. Cite sources as appropriate. (Add rows or columns as needed)

Nutrient	Needs	Equation used, Source and/or justification
Calories	<b>1214 – 1416 kcal</b>  30-35 (40.5kg) = 1214 – 1416 kcal	NCM states that for older adults with pressure ulcers, 30-35 kcal/kg/day is generally adequate to meet the patient's calorie needs. <sup>1</sup>
Protein	<b>49 – 61 g PRO</b>  1.2 - 1.5 (40.5 kg) = 48.54 – 60.68	NCM states that for older adults with pressure ulcers, 1.2 g/kg/day to 1.5 g/kg/day will be adequate to promote wound healing, but will limit the risk for dehydration. <sup>1</sup>
Weight	89 lb or 40.5 kg	There is no indication in her medical record of

		edema or other weight changing factors. She is only 89% of her IBW, her current weight is 40.5 kg. I anticipate that her actual weight will give us a more accurate description of her calorie and protein needs.
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3. Type your Assessment in the box below. Use as much space as needed to complete. Consider the format – how will you make your assessment readable by others on the healthcare team? Be sure to include comparative standards and an overall nutrition risk statement.

**Food and nutrition related history:** (FH-1.3.1.3) DH has been on EN, QID 237 mL through a PEG. (FH-1.2.1.1) Total energy intake is 1000 kcal, (FH-1.6.2) Protein intake is 42 g

**Comparative Standards:** DH needs 1214 – 1416 kcal/day and 49 – 61 g PRO/day

**Anthropometric:** ht: 152.4 cm, wt: 40.5 kg, BMI 17.4, under recommended BMI of 18.5 – 24.9.

**Biochemical:** (BD-1.11.1) Albumin: 2.8 gm/dL, under the recommended 3.5 – 5 gm/dL.

**Nutrition-Focused Physical Findings:** (PD-1.1.8) Stage III decubitus ulcers in the sacral area aggravated by diarrhea and fecal incontinence. (PD-1.1.9) Increased temperature on admit with (PD-1.1.2) non-responsiveness.

**Client History:** 86 year old female, resides at Shady Oaks ECF.

**Overall nutritional risk:** patient is at severe nutritional risk related to history of malnutrition and risk for delayed healing of pressure ulcer due to inadequate calorie and protein intake.

## Section 2. Nutrition Diagnosis

### Determine Nutrition Diagnosis/Problem

1. List the problems DH has in the Intake Domain (if any)

<b>Diagnosis term number</b>	<b>Diagnosis Term</b>
NI-2.3	Inadequate intake from enteral/parenteral nutrition
NI-5.3	Inadequate calorie and protein intake due to increased needs from pressure sores.
NI-5.8.5	Inadequate fiber intake

2. List the problems DH has in the Clinical Domain (if any)

<b>Diagnosis term number</b>	<b>Diagnosis Term</b>
NC-3.1	Underweight, BMI of 17.4, 89% of IBM
NC-2.2	Altered nutrition-related laboratory values: Albumin 2.8, below recommended 3.5-5 gm/dL.

3. List the problems DH has in the Behavioral-Environmental Domain (if any)

<b>Diagnosis term number</b>	<b>Diagnosis Term</b>
NB-2.5	Poor nutrition quality of life: patient has been on inadequate MNT.
NB-2.5	Self-feeding difficulty (assumed because patient has been on enteral nutrition for an extended period of time.)

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## Write a Nutrition Diagnosis PES Statement

Write **Two** Diagnosis Statements using PES format for two of DH's problems. Be sure to use the appropriate format as indicated in the IDNT book.

- Inadequate intake from enteral nutrition related to increased protein and calorie needs as evidenced by low (2.8 gm/dL) Albumin level and formation of type III pressure sore.
- Inadequate fiber intake related to enteral formula with no fiber as evidenced by the presence of diarrhea.

## Section 3. Nutrition Intervention

### Analyze Potential Nutrition Interventions

1. Is DH's diet order appropriate for her current condition? Explain. (*Type text in box below.*)

It is not appropriate for her current condition. While it may be close to her needs without a pressure sore<sup>1</sup> (25 kcal/kg/day or 1011 kcal/day), it is not appropriate for her now. With her pressure sore, she is considered as under stress. She needs extra calories and protein to be able to heal her pressure sore, 30-35 kcal/kg/day and 1.2-1.5gPRO/kg/day.<sup>1</sup>

2. What would be an appropriate formula and rate based on DH's needs? Fill in the table below

List your estimated nutrient needs from above: <b>1214 – 1416 kcal, 49 – 61 g PRO</b>	
Formula Name	<b>Jevity 1</b>
Rate/Administration	<b>1321 mL/day, 55 mL/hr</b>
Kcals	<b>1400 kcal</b>
Protein	<b>59 g</b>
Fiber	<b>19 g</b>
Fluid	<b>1103 mL</b>
Overall Vit/Min	<b>100% of RDAs</b>
Osmolality	<b>300 mOsm/kg H<sub>2</sub>O</b>

Show all work/calculations for formula in the box below.

$1060 \times 1.321 = 1400 \text{ kcal/day}$ $44.3 \times 1.321 = 59 \text{ g PRO}$ $14.4 \times 131.1 = 19 \text{ g fiber}$ $835 \times 1.321 = 1103 \text{ mL fluid}$ $1400/1400 = 100\% \text{ to meet RDA}$
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3. What nutrients would enhance wound healing? (*Type text in box below*)

NCM states that vitamin A and C can help wound healing, but the studies that support that have
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all been in vitamin A and C deficiency. NCM recommends that a multivitamin be given, but that other supplements are not given unless a specific deficiency is found. Also, zinc supplementation should be avoided (unless a zinc deficiency exists) as a zinc supplement was found to increase pressure sore incidence and severity.<sup>1</sup>

4. How is nutrition involved in the development of decubitus ulcers? (*Type text in box below*)

Malnutrition and undernutrition can contribute to the development of a decubitus ulcer.<sup>2</sup> It seems that in DH's case, the lack of fiber in her enteral feeding may have had an effect on the development of her pressure ulcer. With the constant diarrhea (along with other factors), the development of the pressure ulcer was accelerated. Inadequate vitamins and minerals (specifically vitamin A, C, and copper), seem to have an influence in skin health (prevention of decubitus ulcers).<sup>1</sup> Adequate calories and protein are the one of the main preventative measures for decubitus ulcer development.

5. From a COST-BENEFIT point of view, discuss the pros in providing adequate, though possibly more expensive nutritional care, for a patient in an Extended Care Facility with decubitus ulcers vs. the cons of not providing nutrition care. (*Hint: consider expenses of treating a progressive ulcer vs. expense of formula/equipment*) (*Type text in box below*)

Treating a progressive ulcer can be very expensive. It can take weeks or months of special care to heal. This special care may include changing wound dressings, medications, and managing complications. This can become very expensive as well as discouraging to patients. As I looked up the Osmolite<sup>3</sup>, it was actually more expensive than the Jevity<sup>4</sup>. The Jevity seems to address her concerns better. Even with the possible addition of equipment, it would save them money and help DH meet her needs.

6. What is a PEG? (*Type text in box below*)

A PEG is a percutaneous endoscopic gastrostomy. It is a tube that is placed directly into the stomach through the abdominal wall.<sup>2</sup>

7. Why would it be used instead of an NG tube? *(Type text in box below)*

It is used for patients who need tube feeding for more than 3 to 4 weeks. It allows the patient to move more freely and be able to go on and off of the tube feed more easily.<sup>2</sup>

8. What is an intermittent tube feeding? *(Type text in box below)*

This is a feeding schedule that consists of giving a bolus of formula 4 to 6 times per day.<sup>2</sup>

9. What are the advantages of using an intermittent tube feeding in an ECF environment? *(Type text in box below)*

This allows a patient to move around and do other things when they are consistently on a tube feed.<sup>2</sup> In an extended care facility, one advantage of an intermittent tube feeding would be that DH could socialize with other people without being constantly tied to her feeding tube. Care providers would also have more flexibility with bathing schedules and other necessary care procedures. They wouldn't have to worry about the fact that she was missing her feeding.

10. When wouldn't you choose an intermittent schedule? *(Type text in box below)*

If a patient was at high risk for pulmonary aspiration, not tolerating infusions, or had a compromised GI tract, I would not want the patient to be on an intermittent schedule.<sup>2</sup>

11. What is the best schedule of feeding for DH? Explain. (*Type text in box below*)

For now, I would like her on a continuous drip. She has been having diarrhea and fecal incontinence. Perhaps the constant drip will be helpful along with the added fiber in the formula. Currently, she is non-responsive and feeling sick (with a fever). She probably will not want to move around much anyway. As she gets feeling better and her pressure sore heals, we can try the intermediate feeding with the Jevity (which has fiber) to see if she can tolerate the bolus feedings.

### Determine Appropriate Nutrition Interventions

12. Complete the following table

- a. Fill in the nutrition prescription
- b. Fill in at least two interventions. Use the IDNT manual nutrition intervention terminology. Be sure that the interventions match your PES statements. That means the interventions should be directed at fixing the etiology of the nutrition problem/diagnosis.

<b>Nutrition Prescription:</b>	<i>Jevity 1</i> 55 ml/hr to provide 1400 kcal and 59 g PRO provided through PEG (already placed).
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	Intervention	Goal(s)/Expected Outcome
<b>Intervention # 1</b>	ND-2.1 Initiate EN	Patient will obtain the recommended 1214 – 1416 kcal/day and 49 – 61 g PRO/day.
<b>Intervention # 2</b>	RC-1.2 Team meeting to discuss pressure sore healing	Healing of pressure sore.

## **Section 4. Nutrition Monitoring and Evaluation**

1. What will you watch for in monitoring this patient? (Hint: How will you know if your feeding approach is appropriate? Think both short and long term.) *(Type text in box below.)*

I will want to do a nitrogen balance to be sure that she is in positive nitrogen balance. I will also want to make sure that she is hydrated (found through BUN/Creatinine ration or Hct).

Over time, the best indicator that she is getting enough will be her weight maintenance or gain as well as the healing of her pressure sore.<sup>1</sup>

2. What routine monitoring should be done for a long-term enteral feeding? *(Type text in box below.)*

It is important to track weight, edema, dehydration, fluid intake and output, abdominal distention, gastric residuals, electrolytes, and glucose. Also, watch for gastric contents leaking from the stomach out the PEG site causing skin erosion and infection. To prevent aspiration, make sure she has her head elevated above her stomach. Track both diarrhea and constipation to assess formula tolerance.<sup>2</sup>

3. Do you think this patient was appropriately monitored? Why? *(Type text in box below.)*

It doesn't seem like she was. She has been having problems with diarrhea, and they kept her on a non-fiber formula. She developed a stage III pressure ulcer, which should be avoided with proper care (turning, adequate nutrition, etc).

4. Complete the following table for the two interventions and goals you indicated above. Define the following

- a. The **indicators** you will use to measure change. The indicators should measure progress towards goal.
- b. The **criteria for evaluation** (be specific)
- c. Note: the IDNT manual has listed indicators and criteria in the Assessment, monitoring, and evaluation section. Remember your interventions are aimed at resolving a nutrition problem/diagnosis.

Intervention (Copy from above)	Goal/Expected Outcome (Copy form above)	Indicator(s)	Criteria for evaluation
ND-2.1 Initiate EN	Patient will obtain the recommended 1214 – 1416 kcal/day and 49 – 61 g PRO/day.	Weight Nitrogen balance	Maintain or gain weight,  Positive nitrogen balance
RC-1.2 Team meeting to discuss pressure sore healing	Healing of pressure sore (Note: I plan to talk about changing the formula to one that includes fiber to help decrease diarrhea.)	Pressure sore begins to heal.  Decreased diarrhea	Documentation of pressure sore healing per doctor's notes.  Nurse's note indicating decreased

			diarrhea.
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## **References** (Use the format indicated in the Student Handbook)

1. Nutrition Care Manual. Available at <http://www.nutritioncaremanual.org/index.cfm>. Accessed March 16, 2013.
2. Mahan LK, Escott-Stump S. *Krause's Food & Nutrition Therapy*. 12<sup>th</sup> ed. St Louis, MO. Elsevier Enc; 2008.
3. Abbot Nutrition. Osmolilite 1 Cal. Available at <http://abbottnutrition.com/Products/osmolite-1-cal>. Accessed March 16, 2013.
4. Abbot Nutrition. Jevity 1.2 Cal. Available at [http://abbottnutrition.com/Products/jevity-1\\_2-cal](http://abbottnutrition.com/Products/jevity-1_2-cal). Accessed March 16, 2013.

## Case #2: Thermal Injury and Enteral Feeding

A nineteen year old boy was admitted with 3rd degree (full thickness) burns over 30% of his body, including his hands and face, when a gas fireplace exploded in front of him.

He is 5'9" tall and usual weight is 163 lbs. No admit weight was taken. All medical information (labs, meds etc.) are unavailable as he was taken immediately to surgery and he has no known prior medical history. Post-surgery he was placed on mechanical ventilation.

The physician has ordered a nutrition consult with “nutrition support per dietitian” to start as soon as the patient is out of surgery.

### **Section 1: Nutrition Assessment**

*Complete a Nutrition Assessment using the information available. Use the IDNT book as a guide for indicators to assess and document. While the first worksheet prompted you on areas to assess, you are to now use your judgment in making a Nutrition Assessment. You will be scored on the appropriateness of assessment areas and your assessment of those areas.*

#### **Get the assessment started**

To help you get the assessment started completed the following few question.

1. Calculate approximately how much fluid this patient may need for both initial resuscitation and ongoing maintenance (basal + evaporative). Show your work.

		Equation used, Source, and/or justification
Initial Resuscitation	<b>11,741 mL/day</b>	Resuscitation: $(4 \text{ cc})(\text{kg})(\% \text{ burn}) + (1500 \text{ mL})(\text{m}^2)^1$ <i>I used the equation sheet provided on learning suite for each equation.</i>
Basal	<b>2850 mL/day</b>	$1500 \text{ cc} \times \text{m}^2$
Evaporative	<b>104.5 cc/hr</b>	$\text{Adults} = (25 + \% \text{ burn}) \text{ m}^2$
Total Maintenance	<b>5358 mL/day or 223 mL per hour</b>	Maintenance = basal + evaporative

Note:  $\text{m}^2 = \text{TBSA} = \sqrt{((\text{wt (Kg)} \times \text{Ht (cm)})/3600)}$  The square root is for the entire equation; wt in kg, ht in cm

Show your work for fluid calculations in the box below.

<p><math>\text{Kg} = 163/2.2 = 74.09 \text{ kg}</math></p> <p><math>\text{m}^2 = \sqrt{((\text{kg} \times \text{cm}) / 3600)} = \sqrt{((74.09 \times 175) / 3600)} = 1.90 \text{ m}^2</math></p> <p>Resuscitation: <math>(4 \text{ cc})(74.09 \text{ kg})(30) + (1500 \text{ mL})(1.90 \text{ m}^2) = 11,741 \text{ mL/day}</math></p> <p>Basal: <math>1500 \text{ cc} \times 1.9 \text{ m}^2 = 2850 \text{ mL}</math></p> <p>Evaporative: <math>\text{Adults} = (25 + \% \text{ burn}) \text{ m}^2 = \text{cc/hr} = (25+30) \times 1.90 = 104.5 \text{ cc/hr}</math></p> <p>Total Maintenance = basal + evaporative = <math>2850 + 104.5 \times 24 = 5358 \text{ mL}</math></p>
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- Describe how much fluid would be given in the first 24 hours (per 8 hr increments) with



the initial resuscitation

	Total ml	ml/hr
1 <sup>st</sup> 8 hours	<b>5871 mL</b>	<b>734 mL</b>
2 <sup>nd</sup> 8 hours	<b>2936 mL</b>	<b>367 mL</b>
3 <sup>rd</sup> 8 hours	<b>2936 mL</b>	<b>367 mL</b>

3. Calculate comparative standards. Show equation calculations and justify equations, weights, and factors used to calculate comparative standards. e.g. did you use HBE, Kcals/Kg, or another equation and why. What weight did you use IBW, Actual Wt, etc. Cite sources as appropriate. (Add rows or columns as needed).

Nutrient	Needs	Equation used, Source and/or justification
Calories	<p><b>2740 - 3052 kcal/day</b></p> <p>Harris-Benedict:</p> <p>Men: <math>66 + (13.7 \times 74.09) + (5 \times 175) - (6.8 \times 19) = 1826.8</math></p> <p>X 1.5 = 2740 kcal</p> <p>Curreri formula:</p> <p><math>(25 \text{ kcal} \times 74.09 \text{ kg}) + (40 \text{ kcal} \times 30\%) = 3052 \text{ kcal}</math></p>	<p>NCM stated that HB with a 1.5 stress factor or the Curreri formula is commonly used for burn patients (while indirect calorimetry is best).<sup>1</sup> The equations that included mechanical ventilation came out higher than these recommendations (or needed additional information), so I figured this would be best.</p>
Protein	<b>111 – 148 g/day</b>	Protein needs = 1.5 g/kg to

	(1.5 - 2.0 g/kg) x 74.09 kg	2.0 g/kg of body weight. NCM states that for burn patients with more than 10% burns can use this protein equation. <sup>1</sup>
Wt used	74.09 Kg	I went off of his typical body weight. He has a BMI of 24, so is not obese. Using IBW is not necessary.

4. Type your Assessment in the box below. Use as much space as needed to complete. Consider the format – how will you make your assessment readable by others on the healthcare team? Be sure to include comparative standards and an overall nutrition risk statement. Comparative standards should indicate what weight was used. You can make tables if needed to display information for comparative standards, etc. Remember this is just assessment, not diagnosis or intervention.

**History:** (CH-1.1) 19 y.o. male (CH-2.2) Patient is just out of surgery, on mechanical ventilation.

**Nutrition focused physical findings:** (PD-1.1) Third degree burn over 30% of his body, including hands and face.

**Food and Nutrient Related History:** (FH-1.1.1) Requested dietitian consultation per physician.

**Anthro:** AD-1.1 Ht: 175.3 cm, Wt: 74.09 kg, BMI 24.1

**Bio:** no available labs

## Section 2. Nutrition Diagnosis

## Determine Nutrition Diagnosis/Problem

*If there are no problems in a particular domain you may write, “no problems in this domain.”*

1. List the problems in the Intake Domain (if any)

Diagnosis term number	Diagnosis Term
NI-3.1	Inadequate fluid intake.
NI-5.3	Inadequate protein-energy intake.

2. List the problems in the Clinical Domain (if any)

Diagnosis term number	Diagnosis Term
NC-1.2	Biting/Chewing difficulty (assumed because of the burns on his face—I would go in and check)
NC-1.1	Swallowing difficulty (assumed because of the burns on his face—I would go in and check)

3. List the problems in the Behavioral-Environmental Domain (if any)

Diagnosis term number	Diagnosis Term

NB-2.6	Self-feeding difficulty due to burns on hands (assumed because of the burns on his hands—I would go in and check)

### Write a Nutrition Diagnosis PES Statement

Write **Two** Diagnosis Statements using PES format for two of DH's problems. Be sure to use the appropriate format as indicated in the IDNT book.

- Inadequate protein-energy intake related to increased calorie needs as evidenced by 30% 3<sup>rd</sup> degree burn and post-surgery status.
- Biting/Chewing difficulty combined with swallowing difficulty related to decreased mobility of face and mouth as evidenced by 3<sup>rd</sup> degree burns on his face.

### Section 3: Nutrition Intervention:

#### Analyze Potential Nutrition Interventions

1. What type of nutrition support is appropriate for this patient? Explain.

Enteral feeding would probably be the most practical. He has 3<sup>rd</sup> degree burns on his hands so cannot eat well (especially to get the extra calories and protein that he needs.) He does need nutrients quickly due to his hypermetabolic state. The ASPEN guidelines state that “enteral

feeding should be started early within the first 24-48 hours following admission.”<sup>3</sup> There is no indication that his GI tract is not functioning properly, so PN wouldn’t be the best option.

*Assume you decided upon an enteral feeding:*

2. To avoid complications, where would you want the tube to be placed? Why?

I would want a NG tube to be placed. The ASPEN guidelines recommends that for critically ill patients (even those on a ventilator) can use NG or NJ tube without additional risk of pneumonia, unless the patient is at particular risk of aspiration.<sup>3</sup> Because the patient has a ventilator, he should be able to have an NG tube. Patient may recover enough to be able to start p.o. foods, and I don’t want to place a PEG unless necessary. If we find that he does have increased gastric residual volumes, we can change the NG tube to a NJ tube.

3. In general, what type of formula would you select? (eg. low CHO, high pro, low fat, standard). State why you would select this macronutrient distribution.

I would choose a low carbohydrate formula or a high calorie, high protein formula. He needs high calories and high protein, and is on a ventilator. In order to get him adequate calories and protein without giving too much carbohydrate load, we will need a low carbohydrate formula. The amount of fluid given is irrelevant because he needs so much fluid.

4. Identify 2 possible formula brand names that would be appropriate for this patient and include their compositions (e.g. % cho, % pro, etc.)

	Formula #1	Formula #2
Formula Name	<b>Jevity 1.5</b>	<b>Nutren 1.5</b>

% CHO	<b>53.6%</b>	<b>44%</b>
% PRO	<b>17%</b>	<b>16%</b>
% Fat	<b>29.4%</b>	<b>40%</b>
% Free Fluid or g water/L	<b>76%</b>	<b>76%</b>
General Comments about formula (i.e. high nitrogen, high Kcal, immune, etc.)	<b>This is high in calories and high in protein, relatively low in carbohydrates. (It would pass the carb load test)</b>	<b>High in calories and protein. This is lower than the other for carbohydrates.</b>

5. Choose one of the above formulas and calculate a feeding regime that would best meet this patient's needs.

List your estimated nutrient needs from above: <b>2740 - 3052 kcal/day, 111 – 148 g/day</b>	
Formula Name	Jevity 1.5
Final goal rate Total	<b>1900 mL</b>
Final rate ml/hr	<b>79 mL/hr</b>
Kcals Total	<b>2850 kcal</b>
Kcals/Kg	<b>38 kcal/kg</b>
Protein Total	<b>121 g</b>
Pro g/Kg	<b>1.64 g/kg</b>
Carb Total g	<b>409 g</b>

Carb Load mg/kg/min	<b>3.84</b>
Fat	<b>95 g</b>
% Total Kcal from fat	<b>29.4%</b>
Free Fluid	<b>1444 mL</b>

6. Do you think this patient needs supplements of any vitamins or minerals? Explain.

I do not think that the patient needs supplements. The NCM states that burn patients may need a daily multi-vitamin as well as additional vitamin C and vitamin A. The Jevity 1.5 (1900 mL per day) provides all of these in adequate amounts except vitamin A, where it is 500 IU short of the recommendation of 10,000 IU on NCM.<sup>2</sup> I think that it is acceptable because he is already getting almost twice the RDA and was admitted well nourished (assumed). If someone else was concerned about it, I would suggest a daily multivitamin.

### Determine Appropriate Nutrition Interventions

7. Complete the following table
- Fill in the nutrition prescription (i.e. nutrition order, etc.)
  - Fill in at least two interventions. Use the IDNT manual nutrition intervention terminology. Be sure that the interventions match your PES statements. That means the interventions should be directed at fixing the etiology of the nutrition problem/diagnosis.

<b>Nutrition Prescription:</b>	<i>Jevity 1.5</i> 79 ml/hr to provide 2850 kcal and 121 g of protein provided through NG tube.
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	Intervention	Goal(s)/Expected Outcome
<b>Intervention # 1</b>	ND-2.1 Initiate EN	Patient will obtain the recommended 2740 - 3052 kcal/day and 111 – 148 g PRO/day.
<b>Intervention # 2</b>	RC-1.1 Team meeting to discuss feeding method	Patient will obtain adequate nutrition through NG or PEG, depending on his capacity to accept an oral tube.

## **Section 4. Nutrition Monitoring and Evaluation**

- Initially post burn and as time goes on, what changes would you expect to see in the patient's weight and albumin levels?

From the initial burn, I would expect the patient to go into shock.<sup>4</sup> Albumin would be decreased due to the shock. Initially, weight would decrease due to loss of fluid and electrolytes through the burn.<sup>4</sup>

As time goes on, albumin will still remain low and be a very poor marker for nutritional status. After fluid resuscitation and as maintenance of blood volume through added fluids continues, the patient's weight will dramatically increase. This represents water weight and should not be mistaken for overfeeding.<sup>1</sup>

- Do the changes above reflect the patient's nutritional status? Why?

They do not reflect the patient's nutritional status because under severe stress, the liver doesn't maintain albumin levels even if the patient is adequately nourished. The weight gain represents water weight and not increased fat stores. This water weight should not be decreased as long as the patient needs additional fluids to maintain blood volume.<sup>1</sup>

- What will be your best long term monitors (indicators) to assess if your nutrition care is appropriate?



If the burn is healing, the nutrition intervention is working.<sup>1,2</sup>

Protein balance may be done (through 24-hour urine urea nitrogen and protein intake) to assess whether the patient is in positive nitrogen balance.<sup>2</sup>

5. Complete the following table for the two interventions and goals you indicated above. Define the following

- The **indicators** you will use to measure change. The indicators should measure progress towards goal.
- The **criteria for evaluation** (be specific)
- Note: the IDNT manual has listed indicators and criteria in the Assessment, monitoring, and evaluation section. Remember your interventions are aimed at resolving a nutrition problem/diagnosis and its etiology.

Intervention (Copy from above)	Goal/Expected Outcome (Copy form above)	Indicator(s)	Criteria for evaluation
ND-2.1 Initiate EN	Patient will obtain the recommended 2740 - 3052 kcal/day and 111 – 148 g PRO/day.	Nitrogen balance study.  Healing of burn.	Positive nitrogen balance.  Burn healing.
RC-1.1 Team meeting to discuss feeding method	Patient will obtain adequate nutrition through NG or PEG, depending on his capacity to accept an oral tube.	Nurse's note tracking amount of formula given.	Patient receives 2740 - 3052 kcal/day and 111 – 148 g PRO/day through NG tube or PEG.

**References** (Use the format indicated in the Student Handbook)

1. Williams P. Lecture notes. Advanced Dietetic Practices, Brigham Young University. Winter 2013.
2. Nutrition Care Manual. Available at <http://www.nutritioncaremanual.org/index.cfm>. Accessed March 15, 2013.
3. McClave SA, Martindale RG, Vanek VW, McCarthy M, Roberts p, Taylor B, Ochoa JB, Napolitano L, Cresci G, the A.S.P.E.N. Board of Directors and the American College of Critical Care Medicine. Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient. *JPEN J Parenter Enteral Nutr* 2009;33:277-316.
4. Mahan LK, Escott-Stump S. *Krause's Food & Nutrition Therapy*. 12<sup>th</sup> ed. St Louis, MO. Elsevier Enc; 2008.

### Case #3: HIV Disease and TPN

26 year old male with AIDS is admitted to the hospital on 2/4 with Pneumocystis Carinii Pneumonia, oral Candidiasis and chronic, excessive diarrhea.

The following TPN was ordered by his physician:

D50 AA8.5% (equal parts) @ 125 cc/hr with 500 cc of 20% lipids daily.

You are completing the assessment on 2/8. From an interview with the patient and reviewing the medical records, you were able to obtain the following information:

Labs	Date: 2/4 (Before TPN)	Date: 2/8 (Post TPN)
T <sub>4</sub>	50 nmol/L	-----
Albumin	2.4 g/dl	2.1 g/dl
Na <sup>+</sup>	121 mEq/L	134 mEq/L
K <sup>+</sup>	3.0 mEq/L	2.4 mEq/L
BUN	8 mg/dl	8 mg/dl
Creat	1.9 mg/dl	1.4 mg/dl
Glucose	155 mg/dl	275 mg/dl
Phos	2.3 mEq/L	0.6 mEq/L

Mg	2.0 mEq/L	0.9 mEq/L
Ca	4.0 mEq/L (2.0 mmol/L)	3.2 mEq/L (1.6 mmol/L)
PT	12	18

Height: 5'11" Weight: 135 lb, usual wt 170 lb (8 months ago)

Currently unable to tolerate much po except for Jell-O, applesauce, cream of wheat cereal, and occasional Ensure and fruit smoothies.

## **Section 1: Nutrition Assessment**

*Complete a Nutrition Assessment using the information available. Use the IDNT book as a guide for indicators to assess and document. While the first worksheet prompted you on areas to assess, you are to now use your judgment in making a Nutrition Assessment. You will be scored on the appropriateness of assessment areas and your assessment of those areas.*

### **Get the assessment started**

To help you get the assessment started completed the following few question.

1. Calculate the TPN order.

Total Calories (Kcals)

NPC Calories (Kcals)

Protein (g)

Protein (g/Kg)

CHO Load

Fat Load

% Cal Carb

% Cal Pro

% Cal Fat

Show your calculations below

2. The TPN was started on 2/5. You are assessing the patient on 2/8. Explain the changes in the lab values from 2/4 (before TPN) to 2/8 (after 3 days of TPN).

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3. What nutrition complications might you see from medications for AIDS and medications for opportunistic infections?
  
  
  
  
  
  
  
  
  
  
4. Calculate comparative standards. Show equation calculations and justify equations, weights, and factors used to calculate comparative standards. e.g. did you use HBE, Kcals/Kg, or another equation and why. What weight did you use IBW, Actual Wt, etc. Cite sources as appropriate. (Add row or columns as needed).

Nutrient	Needs	Equation used, Source and/or justification
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5. Type your Assessment in the box below. Use as much space as needed to complete. Consider the format – how will you make your assessment readable by others on the healthcare team? Be sure to include comparative standards and an overall nutrition risk statement. Comparative standards should indicate what weight was used. You can make tables if needed to display information for comparative standards, etc. Remember this is just assessment, not diagnosis or intervention.

## **Section 2. Nutrition Diagnosis**

### **Determine Nutrition Diagnosis/Problem**

*If there are no problems in a particular domain you may write, “no problems in this domain.”*

1. List the problems in the Intake Domain (if any)

**Diagnosis**

**Diagnosis Term**

**term number**

2. List the problems in the Clinical Domain (if any)

**Diagnosis**  
**term number**

**Diagnosis Term**

3. List the problems in the Behavioral-Environmental Domain (if any)

**Diagnosis**  
**term number**

**Diagnosis Term**

### **Write a Nutrition Diagnosis PES Statement**

Write **Two** Diagnosis Statements using PES format for two of DH's problems. Be sure to use the appropriate format as indicated in the IDNT book.

### **Section 3: Nutrition Intervention:**

#### **Analyze Potential Nutrition Interventions**

1. Is the current nutrition support order appropriate? Explain. Include any complications that could result from the current TPN prescription and what labs or data you would use to assess and monitor these complications.

2. What type of nutrition support is appropriate for this patient? Explain.

3. Should vitamin/mineral supplementation be considered? Explain.
4. Assume TPN is chosen by the team as the best method of nutrition support at this time. Calculate a TPN order to meet the patient's needs. The standard TPN at this hospital is available as D30 or D50 and AA8.5% or Aa10% equal parts. Lipids are available as 10% or 20% bottles given separately.



List your estimated nutrient needs from above:

List weight Used:

TPN Recommendation: (i.e. what you want ordered for TPN) *Tip: calculate all the items below then fill in this section.*

Volume and type dextrose

Volume and type AA

Total Volume

Rate (ml/hr)

Lipid type and amount

Total Kcals

CHO g and Kcals

CHO Load

Pro g and Kcals

Protein g/Kg

Fat g and Kcals

Fat load

Show your calculations below

## Determine Appropriate Nutrition Interventions

5. Complete the following table
- Fill in the nutrition prescription (i.e. nutrition order, TPN order, etc.)
  - Fill in at least two interventions. Use the IDNT manual nutrition intervention terminology. Be sure that the interventions match your PES statements. That means the interventions should be directed at fixing the etiology of the nutrition problem/diagnosis. *Tip think of these intervention as what you would recommend the doctor order for nutrition support.*

<b>Nutrition Prescription:</b>		
	<b>Intervention</b>	<b>Goal(s)/Expected Outcome</b>
<b>Intervention # 1</b>		
<b>Intervention # 2</b>		

## Section 4. Nutrition Monitoring and Evaluation

1. Complete the following table for the two interventions and goals you indicated above. Define the following
  - a. The **indicators** you will use to measure change. The indicators should measure progress toward goal.
  - b. The **criteria for evaluation** (be specific)
  - c. Note: the IDNT manual has listed indicators and criteria in the Assessment, monitoring, and evaluation section. Remember your interventions are aimed at resolving a nutrition problem/diagnosis and its etiology.

Intervention (Copy from above)	Goal/Expected Outcome (Copy form above)	Indicator(s)	Criteria for evaluation

**References** (Use the format indicated in the Student Handbook)