

Texas A&M Dietetic Internship Program
Clinical Rotation Descriptions for
Scott & White
Central Texas Veteran's Health Care System
St. Joseph Regional Health Center

Scott & White Clinical Rotation Descriptions

Rotation	Page
Cardiology Rotation Description	1
Workbook	3
General Medicine Rotation Description	6
Reading List	7
Workbook and Case Study	8
Long-term Acute Care (LTAC) Continuing Care Hospital (CCH)	21
Rotation Description	
Reading List	23
Oncology Rotation Description	24
Reading List	25
Workbook	26
Medical Weight Management Program Description	29
Nutrition Support Rotation Description	30
Nutrition Support Quiz	32
Pediatrics Rotation Description	46
Pediatric Reading List	47
Medical Glossary	48
Infant formula and indications	50
Choosing the Right Formula	51
Nutrition Assessment	55
Pediatric Case Studies	58
Formula Assignment I	61
Formula Assignment II	63
NICU Competency Quiz	64
Diabetes Clinic Rotation Description	66
Reading List	67
Workbook	68
Outpatient Renal Rotation Description	75
Renal Worksheet	76

VA Clinical Rotation Descriptions

Rotation	Page
General Medicine/Cardiology Rotation Description	78
Reading List	80
Workbook	81
Gerontology/Wound Care/Rehab/Hospice Rotation Description	89
Reading List	92
Workbook	93
Oncology Rotation Description	97
Nutrition Support Rotation Description	99
Reading List	101
Workbook	102
Outpatient Clinic (CTVHCS)	104
Reading List	105
Workbook	106
Outpatient Nutrition Clinic Guidelines	107

St. Joseph Regional Health Center Clinical Rotation Descriptions

Rotation Description	109
Reading list	111
Cardiology case study	112
Wound Care case study	114
Pancreatitis case study	116
Oncology case study	118
Pediatric case study	119
Critical Care Case Study	121

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: Cardiology — Scott & White**

1. Readings: Packet to be picked up prior to rotation
Nutrition Intervention in the Critically Ill Cardiac Patient (in NCP)
The Heart Speaks I and II: Embracing Integrative Medicine for Heart Health (in NCP)
2. Workbook: Due on 1st day of rotation.
3. Project: 1 case study presented to S&W clinical dietitians during rotation
4. Cardiac Rehab Class: Teach class as available, develop handout as assigned
5. Assignments: As assigned
6. Abstracts: 2 current articles (within past 5 years), due by last day of rotation.
7. Evaluation

**All Assignments will be typed, except the Evaluation.

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
CLINICAL WORKBOOK — Cardiology — Scott & White**

1. Identify at least six risk factors for coronary heart disease.
2. Define the following lipids (fats) and their roles in the development of heart disease.
 - a. Cholesterol
 - b. Saturated fats
 - c. Monounsaturated fats
 - d. Polyunsaturated fats
 - e. Triglycerides
3. Define the following cardiac disease states or conditions associated with cardiac disease.
 - a. Aortic aneurysm
 - b. Aortic stenosis
 - c. Arteriosclerosis
 - d. Atherosclerosis
 - e. Cardiac cachexia
 - f. Cardiomyopathy
 - g. Cardiorenal syndrome
 - h. Congestive Heart Failure (CHF)
 - i. Coronary Artery Disease (CAD)
 - j. Hypertension
 - k. Ischemic heart disease
 - l. Mitral valve regurgitation
 - m. Myocardial infarction
 - n. Pericarditis
 - o. Peripheral vascular disease
 - p. Sick sinus syndrome
4. Define the following cardiology terms:
 - a. Angina pectoris
 - b. Arrhythmia
 - c. Atrial fibrillation
 - d. Bradycardia
 - e. Cardioversion
 - f. Plaque
 - g. Tachycardia
5. What pertinent lab values are used in the nutritional screening process for cardiology patients?
6. What are the recommended normal values for cholesterol and LDL cholesterol according to the National Cholesterol Education Program?
7. What is the acceptable ratio for Total cholesterol: HDL?

8. Discuss the rationale for each of the following diets as related to the cardiac disease state.
 - a. Sodium restricted
 - b. Fluid restricted
 - c. Low fat
 - d. Low cholesterol

9. Discuss the use of the following drugs in the treatment of cardiac disease.
 - a. Aspirin
 - b. Albumin
 - c. Cholestyramine
 - d. Clofibrate
 - e. Coumadin
 - f. Digoxin
 - g. Furosemide
 - h. Gemfibrozil
 - i. Heparin
 - j. Inderal
 - k. Isordil
 - l. Lidocaine
 - m. Lopressor
 - n. Nicotinic acid
 - o. Nitroglycerine
 - p. Persantine
 - q. Procardia
 - r. Hydrochlorothiazide
 - s. Provacol
 - t. Zocor

10. Define and discuss the following cardiac procedures:
 - a. Angiography
 - b. Aortic Valve Replacement (AVR)
 - c. Aortogram
 - d. Arteriogram
 - e. Cardiac catheterization
 - f. Coronary Artery Bypass Graft (CABG)
 - g. Doppler Flow study
 - h. Cardiac pacemaker
 - i. Echocardiogram
 - j. Electrocardiogram (EKG or ECG)
 - k. Orthotopic Heart Transplantation (OHT)
 - l. Mitral Valve Replacement (MVR)
 - m. Percutaneous Transluminal Coronary Angioplasty (PTCA)
 - n. Treadmill Stress Test
 - o. Stent

11. Diet:

- a. List common foods that are high in cholesterol and acceptable daily intake of cholesterol
- b. List common foods that are high in saturated fats and acceptable daily intake of saturated fat
- c. List common foods that are high in polyunsaturated fats.
- d. What foods are good sources of monounsaturated fats?
- e. What foods are good sources of omega 3 fatty acids?
- f. What information or suggestions would you give to a patient on a fat-controlled, sodium-controlled diet for meals eaten away from home?
- g. How many mg of Na⁺ are in 1 tsp. of salt?
- h. Describe the clinical effects of dietary fiber on hyperlipidemia.

12. Explain how the figure % kcals from fat on a nutrition food label. What is the acceptable % for fat?

13. Identify the following abbreviations. (may not directly apply to cardiology)

POD	AVR
ASCVD	MI
ASHD	s
BID	BKA
BPH	TIA
qd	CVA
HTN	GERD
AS	p
MVR	N&V
NPO	TPN
CHF	DX
COPD	CXR
CNS	IABP
s/p	NKA
CABG	PTA
WNL	NKFA
PMHX	DNR
IDDM	PRN
NIDDM	
TID	
PUD	

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: General Medicine - Scott & White**

General Medicine

Location: Scott & White Hospital

Goal: Increase knowledge of and enhance skills in meeting the nutritional care needs of patients with a wide variety of illnesses/conditions. Develop and increase skills in nutritional assessment. Promote continued development of competence in nutrition care delivery. Participate in a team approach to patient care.

II. Rotation Preparation (Complete prior to starting rotation)

- a. Reading list (attached)
- b. Complete General Medicine workbook prior to first day of rotation.
- c. Prepare written list of goals and objectives for rotation to discuss with the dietitian on first day of rotation.
- d. Contact the dietitian prior to the first day of the rotation (at least one week prior) to make necessary arrangements and pick up reading packets, etc.

III. Routine Duties

- a. Keep record of diagnosis seen. Make sure to at least one patient with the following diagnosis if at all possible: COPD, pancreatitis, hepatitis/cirrhosis, pressure ulcer, malnutrition, Crohn's/Ulcerative Colitis, ESRD, CKD, Cystic Fibrosis
- b. Set up snack and supplements for patients as needed and record patient preferences in Computrition.
- c. Attend clinical meetings as assigned by dietitian.
- d. Give diet instructions for the following: Renal, Diabetic, and any other assigned by dietitian.

IV. Routine Assignments

- a. Do at least one calorie count during the rotation.
- b. Do an abstract from the library (including a copy of original article on an assigned subject).
- c. Attend pertinent lectures and/or presentations as assigned by dietitian.
- d. Present a case study to the dietitians on the last week of rotation.
- e. Assigned rotation project due second Thursday of rotation.
- f. Perform other duties as assigned by the dietitian.

IV. Evaluation

- a. Schedule a mid-rotation evaluation with the dietitian.
- b. Submit completed written assignments as requested by the dietitian.
- c. Schedule rotation evaluation for the last day of the rotation.
- d. Submit completed evaluation forms and written rotation assignments to the Internship Director no later than one week from the last day of the rotation.

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: General Medicine - Scott & White**

Reading List

From text: “Nutrition and Diagnosis – Related Care” by Sylvia Escott-Stump

Please read indicated topics under each section

Section 1: Normal Life-Cycle Condition

- Adulthood
- Geriatric Nutrition

Section 2: Dietary Practices and Miscellaneous Conditions

- Skin Conditions
- Pressure Ulcers
- Vitamin Deficiencies

Section 4: Neurological and Mental Conditions

- Multiple Sclerosis
- Spinal Cord Injury
- Stroke

Section 5: Pulmonary Disorders

- Chronic Obstructive Pulmonary Disease
- Chylothorax
- Cystic Fibrosis
- Respiratory Distress Syndrome

Section 7: Gastrointestinal Disorders

- Read all topics

Section 8: Hepatic, Pancreatic, and Biliary Disorders

- Read all topics

Section 9: Endocrine Disorders

- Read all sections under Diabetes Mellitus, Complications, and Related Conditions
- Thyroid gland:
 - Hyperthyroidism
 - Hypothyroidism

Section 10: Weight Management, Undernutrition, and Malnutrition

- Read all topics

Section 15: AIDS and Immunology, Infections, Burns, and Trauma

- AIDS and HIV Infection
- Burns (Thermal Injury)
- Multiple Organ Dysfunction Syndrome
- Sepsis and Systemic Inflammatory Response

Revised December 2011

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: General Medicine - Scott & White**

1. Medications: Briefly indicate usage for each drug and any nutrition-related side effects.

Reglan

Prednisone

Lomotil

Questran

Lasix

Dilantin

Heparin

Coumadin

Metamucil

Dulcolax

Miralax

Colace

Zantac

Zoloft

Zofran

MOM

Phenergan

Lactulose

Synthroid

Zemplar

Ferrous Sulfate

Revised December 2011

Epogen

Megace

Pancreatic enzymes

Metformin

Insulin

ACTOS

Glyburide

Glipizide

HCTZ

Furosemide

Spironolactone

PhosLo

Calcium Carbonate

2.List names and meaning for the following abbreviations.

Alb	PO
BID	NPO
TID	PUD
QID	PVD
QD	PRN

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CAD	CVA
c/o	TIA
CAD	TPN/CPN
CABG	WNL
CHF	NGT
COPD	LLL- LLQ-
DKA	HTN
DM	IBS
Dx	MI
FUO	IVF
GERD	IBD
H/O- h/o	SBS
HCTZ	NKFA
AAA	PEG
Abd	PEJ
AKA- BKA-	PEGJ
ARDS	ESRD

ARF	CRF/CKD
HD	PD
IDPN	CF
GFR	SNF
HgbA1c	SOB
POD #1	UTI
R/O; r/o	PICC
S/P –	CVC
N/V/D	CA
DVT	MVA
LFT	MVI
NS	GSW
AST	ALT
DIC	CBC

3. Briefly define the following conditions/diseases and list the primary nutrition intervention(s) for each:

Acute Renal Failure (ARF)-
Coronary Artery Disease (CAD)-
Congestive Heart Failure (CHF)
Cirrhosis-
Cholecystitis-

Cholelithiasis

Chronic Renal Failure (CRF)-

Crohn's Disease

Colostomy-

Chronic Obstructive Pulmonary Disease (COPD)-

CVA-

Cystic Fibrosis-

Diabetes, Type 1-

Diabetes, Type 2-

Diarrhea-

Dumping Syndrome-

Gastrectomy, full or partial-

GERD-

Hepatic encephalopathy-

Hepatitis-

Hypertension-

Hypoglycemia-

Irritable Bowel Syndrome-

Pancreatitis-

Peptic Ulcer Disease (PUD)-

Short Bowel Syndrome-
Ulcerative colitis-

4. What labs might be altered in the following conditions? Indicate direction of impact for all that apply.

Conditions	Labs which may be altered
Fluid Overload	
Hepatic Dysfunction	
Malnutrition, Kwashiorkor	
Malnutrition, Marasmus	
Pancreatitis	

Refeeding Syndrome	
Renal Failure	

TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: General Medicine - Scott & White

Case Study Nutrition Scenarios:

Mr. Drake is 35 years old, 185 cm successful businessman who was recently diagnosed as having AIDS. About 2 years ago he weighed 86 kg. He was hospitalized for weakness, fatigue and infective endocarditis.

1. What are the nutritional goals for a patient with AIDS?
2. Calculate Mr. Drake's kcal and protein needs.
3. Define:
 - a. Normocytic, normochromic anemia
 - b. Endocarditis
 - c. Candidiasis
4. Diarrhea is a complication of AIDS. What are some of the causes?
5. What specialized nutritional supplements may be useful for the treatment of malabsorption due to diarrhea in the AIDS patient?
6. Identify use of Marinol and Megace in the patient with AIDS.
7. What are the beneficial characteristics of these medications?

Mr. Johnson is a 45 years old BM who is 5'11" and weighs 170 pounds. He presented to ER with acute abdominal pain. His physician has told him that he has acute pancreatitis.

1. What abnormal lab values are indicative of pancreatitis?
2. Calculate Mr. Johnson's kcaloric needs using Harris Benedict's equation. How much protein should he receive?

Two years later Mr. Johnson presents with a worsening condition. He has developed ascites and pedal edema. Urinary output is decreasing. He now weighs 150 pounds.

1. Define the following additional diagnoses:
 - a. Hepatic encephalopathy
 - b. Portal Hypertension
 - c. Esophageal Varices

d. Asterixis

2. What is the mechanism of the following drugs?
 - a. Spironolactone
 - b. Furosemide (Lasix)
 - c. Lactulose
3. Calculate Mr. Johnson's total caloric and protein needs.
4. What other dietary recommendations would you make?

Mrs. Jones is a 68 years old who is 5'4" and weighs 170 lbs. She has been diagnosed with diverticulitis in the sigmoid and descending colon.

1. What is Mrs. Jones IBW, % IBW and Adjusted Body weight?
2. Define diverticulitis and diverticulosis, and the suggested dietary recommendation for each.
3. What are some of the symptoms of diverticulitis?

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: Long Term ACUTE CARE — Scott &
White Continuing Care Hospital (CCH)**

1. Readings: Packet to be picked up prior to rotation.
2. Pretest: 1st day
3. Worksheet: Due on 1st day of rotation.
4. Project: As assigned
5. Care plan meeting attendance on Tuesday
6. Quizzes: As assigned
7. Assignments: As assigned
8. Abstracts: 1 current articles, due by last week of rotation.
9. Evaluation

****All Assignments will be typed, except the Evaluation.**

Rotation address: 546 Kegley Road
Temple, Texas 76502
(254)215-0869 or 215-0868

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
LONGTERM ACUTE CARE READING LIST**

1. Treating the Patient with Short Bowel Syndrome (SBO) ASPEN MAY 2005 Learning module
2. The Hostile Abdomen ASPEN September 2011
3. Scott & White TPN protocol form
4. Scott & White Tube feeding protocol form
5. Scott & White Formulary information form
6. Is There a Role for Albumin in Nutrition Assessment? Medical Nutrition Matters; Vol 30 No 1: Summer 2010
7. Early vs Late Parenteral Nutrition in Critically Ill Adults: New England J. of Medicine; Boston, Mass 2011.

TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: Oncology – S&W

Scott & White Oncology: Location: Scott & White Hospital (Inpatient Services)

- I. **Goal:** Increase knowledge and enhance skills in meeting the nutritional needs of oncology patients who are receiving chemotherapy, radiation treatments, and/or bone marrow transplantation. Promote continued development of basic nutrition assessment and care skills and provide an opportunity to participate in a team approach to patient care.

- II. **Rotation Preparation:**
 - a. Contact Dietitian prior to the first day of the rotation to make necessary arrangements.
 - b. Read the Oncology Reading List
 - c. Complete the Oncology Workbook
 - d. Prepare written list of goals and objectives for rotation to discuss with the Dietitian on day 1.

- III. **Routine Duties:**
 - a. Participate in daily activities of Oncology Dietitian.
 - b. Gather pertinent chart and lab information to complete nutritional assessments.
 - c. Actively participate with the Oncology Health Care Team
 - d. Attend all meetings/conferences as assigned.
 - e. Diet instructions and consultations as assigned.
 - f. Meal rounds as assigned.

- IV. **Rotation Assignments:**
 - a. Complete Oncology Workbook by day 1.
 - b. Case study of Oncology patient.
 - c. Review and write summary on 2 recent articles pertaining to nutrition of oncology patients.
 - d. Projects as assigned.
 - e. Tests as assigned.

- V. **Evaluation**
 - a. Submit completed written assignments to the Dietitian as assigned.
 - b. Schedule rotation evaluation for the last day of rotation.
 - c. Submit completed evaluation forms and written rotation assignments to the Director no later than one week from the last day of rotation.

TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
READING LIST
Oncology –S&W

1. Nutritional Problems and the Cancer Patient: Psychosocial Considerations. *Oncology Issues*. 2002.
2. Adequate Nutrition Creates Positive Outcomes and Improves Quality of Life. *ONS News*. Dec 2002.
3. Bone Marrow Transplantation. *Nurse to Nurse*.
4. Graft-vs-Host Disease: Nutrition Therapy in a Challenging Condition. *Nutrition in Clinical Practice*. Aug 2005.
5. Randomized Comparison of Cooked and Noncooked Diets in patients Undergoing Remission Induction Therapy for Acute Myeloid Leukemia. *Journal of Clinical Oncology*. Dec 2008.
6. Chapter Three: Cancer and Metabolic Response. *Nutrition in Cancer Treatment*. 2nd Edition, revised Apr 2007.
7. Chapter Seven: Hematopoietic Cell Transplantation. *Nutrition in Cancer Treatment*. 2nd Edition, revised Apr 2007.
8. Chapter Nine: Advanced Cancer and Palliative Care. *Nutrition in Cancer Treatment*. 2nd Edition, revised Apr 2007.
9. Section 13: Cancer. *Nutrition and Diagnosis – Related Care*. Sixth Edition, 2008.

12. What is the difference between autologous, allogeneic, and syngeneic BMT transplants?

13. Briefly discuss the four phases of the BMT procedure:
 - a. Harvest

 - b. Conditioning

 - c. Transplantation

 - d. Engraftment

14. List potential complications related to the transplantation.

15. Define Graft Versus Host Disease. How do Acute GVHD and Chronic GVHD differ? What complications may occur as a result of GVHD?

16. Discuss nutrition support for the BMT patient (include oral, enteral and parenteral).

TEXAS A & M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: Baylor Scott & White - Medical Weight Management
Program (MWMP)

MWMP:	Location:	Baylor Scott and White Memorial Hospital
	Rotation:	Inpatient Cardiology
	Duration:	40-80 hours

Two Week Rotation Content:

1. Observe weekly MWMP class sessions.
2. Help with tasks related to the classes such as entry into Excel spreadsheets, preparation of meal replacement orders, preparation of class handouts, etc.
3. Prepare and present a 30-45 minute MWMP PowerPoint education session for MWMP group in the On Going Practice phase.
4. Enter patient data into the program Access Data Base.
5. Prepare literature reviews on related topics.
6. Other related assignments depending on student interest and program needs.

TEXAS A & M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: Nutrition Support - Scott and White

Nutrition Support: Location: Scott and White Memorial Hospital
 Duration: 40 hours

I. Learning Objectives

1. Distinguish the differences between the following enteral products:
 - Osmolite vs. Promote
 - Nepro vs. Suplena
 - Ensure Clinical Strength vs. Boost Plus
 - Criticare HN vs. Vivonex RTF
 - Osmolite vs. Jevity
 - Pivot 1.5 vs. Impact 1.0 vs. Oxepa
 - Peptamen AF 1.2 vs. Vital 1.0 & 1.2
 - Modular products, such as, eg, Beneprotein, Juven, eg.
2. Verbalize the use of standard formulas vs. specialty formulas and provide uses and names for the specialty formulas.
3. Verbalize how much it takes of the various formulas to meet the RDA of vitamins and minerals
4. Verbalize nutritional calculations of enteral patients' needs.
5. Demonstrate a parenteral substrate admixture, including macronutrients, electrolytes, and fluid volume.
6. Demonstrate an understanding of the rationale of parenteral additives.

II. Schedule of Daily Duties

1. Days 1 through 3: Intern will "shadow" the precepting RD
 - Learn the daily routine including the Continuous Monitoring Criteria
 - Tube feeding patient list
 - Parenteral patient list
2. Day 4: intern will perform duties while RD observes
3. Day 5: through end of rotation: intern will independently see patients but will discuss cases with precepting RD and show draft of chart notes to RD before writing them in the medical records.
4. Precepting RD will cosign every documentation in the chart.

III. Intern's Responsibilities

1. Schedule a time to discuss patients' assignment with the precepting RD daily.
2. Do assigned patients' consults (from day 4) and follow-up daily.
3. As specific and/or unusual patient's diagnoses arise, where further understanding and knowledge is needed, the intern is responsible to do literature search on his/her own time. The intern will then discuss the case with the precepting RD the following day.

IV. Assignments and written materials

1. *The A.S.P.E.N. Nutrition Support Practice Manual, 2ⁿ ed.* book provided by the TAMU Director of the Dietetic Internship.
 - The intern is responsible for reading the following chapters and tables prior to the Nutrition Support rotation.
 - Content from Table 1-12 and Table 1-13 (pages 22, 23)
 - Chapters 3, 4, 5, 6, 9, 11, 12, 14, 15, 17
 - Table 8-1, Table 8-3, Table 8-4, Table 8-5, Table 8-9
2. The intern should be ready to verbalize the metabolic pathways of carbohydrates, proteins and fats on the first day of the rotation.
3. Journal reading as assigned.

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
CLINICAL WORKBOOK: NUTRITION SUPPORT**

1. What are the caloric values per gram associated with each of those parenteral substrates?

2. Define transitional feeding.

3. What single nutrient deficiency causes taste aberrations?

4. What are the monitoring parameters for tolerance to protein and/or effect of protein administration?

5. A hypermetabolic adult patient may have glucose intolerance. The recommended maximum amount of glucose to be provided is:
 - 5 mg/kg/min
 - 6 mg/kg
 - 500 gm daily
 - 2 gm/kg

6. Excess amino acid dosing can be harmful. Explain.

A. True B. False

7. 0.45 % NaCl (1/2 NaCl) has 77 mEq/L A. True B. False

0.9 % NaCl (NS) has 154 mEq/L A. True B. False
3.0 % NaCl has 513 mEq/L A. True B. False

8. Ringer's lactate solution contains 130 mEq/L NaCl

A. True B. False

9. What is the caloric value per gram of medium chain triglycerides?

10. What PDCAAS stand for and what does it mean?

11. How many grams of dextrose are in a liter of D₁₀ and what caloric value does it have?

12. Is insulin compatible with the TPN admixture?

13. Is potassium able to be replenished without replenishing magnesium

A. True

B. False

14. What are the insensible losses (IL)?

Volume of IL/day:

15. Provide one formula for a maintenance fluid assessment of an adult patient.

16. The drug Propofol (Deprivan) has _____ kcal/ml.

17. Circle the essential fatty acids.

A. Linoleic B. Linolenic C. Arachidonic D. Oleic E. Palmitic

18. What is an enteral nutrition product that contains no essential fatty acids.

19. What is the fat source of the parenteral lipid emulsion in "Intralipid?"

20. Excess fat can cause deleterious immunological consequences. Explain

A. True B. False

21. In the ICU, which drug calls for monitoring for triglycerides?

22. What two factors are implicated with hyperglycemia in hospital patients?
23. Patients with gastric bypass surgery are likely to be deficient in the following vitamins and minerals?
24. Barbiturates and paralytics are often given to traumatic brain injured patients. Are these likely to increase or decrease the caloric requirements and by what percentage?
25. Approximately how much fluid (in milliliters) will one gram of albumin pull into the intravascular compartment?
26. An acute abdominal compartment syndrome is a painful condition caused by increase pressure. Are tube feeds indicated with an abnormal increased pressure?
27. Exogenous pancreatic enzymes may be needed after the following surgery?
28. The approximate length of the
- duodenum is _____
 - the jejunum is _____
 - the ileum is _____
 - and the colon _____
29. What does creatinine clearance measure?
30. What is azotemia? What is uremia?

31. Sodium is the major mineral of the extracellular space.

A. True

B. False

32. Which two of the following nutritional substrates that are available for parenteral use contain phosphate (circle)?

AA

CHO

Fat

33. Potassium and phosphorus will migrate intracellularly? Or extracellularly (eg, when trying to correct refeeding syndrome)

34. What are the approximate concentrations of sodium chloride and potassium chloride in mEq/L of fluid that can be lost through diarrhea?

_____ mEq NaCl
_____ mEq KCl 1

35. What is the principal deleterious metabolic consequence of prolonged hyperglycemia? And prolong hypoglycemia?

36. Serum albumin (≤ 3.0 gm/dL) may likely caused diarrhea due to small bowel edema?

A. True

B. False

37. Tube feeding formulas are seldom the cause of diarrhea.

A. True

B. False

38. Name two electrolytes that are bound (30% and 50% respectively) to albumin.

39. SIRS, systemic inflammatory response syndrome, may increase REE 9 – 12 days and even persists 21 days after the onset and cause 16% total body protein.

A. True

B. False

40. Fistuloclysis can successfully replace TPN in the nutritional support of patients with enterocutaneous fistula.

A. True

B. False

41. Daily production on mL amount to:

- Gastric _____
- Small Bowel _____
- Pancreatic _____

42. High-output fistula is defined as _____mL/day

43. If TPN is long-term, obtaining serum levels of copper, chromium, zinc, selenium, and (whole blood) manganese every:

A. 3 months

B. 6 months

C. 9 months

44. What does RDA mean? What is the difference between RDA and US RDA?

45. TPN and Mineral Content

- Zinc -- add additional 5-15 mg with consistent GI losses
- Chromium -- Consider smaller doses in renal failure and monitor for signs of deficiency
- Copper -- If serum Cu levels are elevated in patients with cholestasis, decrease or temporarily omit Cu. If Cu has been omitted from TPN, check levels every month.

A. True

B. False

46. Which trace element is renally excreted and subject to significant losses through fistula and diarrheal fluids?

47. What is the definition of short bowel syndrome (with and without the large intestine)

56. Potential sources of additional calories:

- a. Propofol—sedative often used in critical care; infused in 10% lipid emulsion
- b. IV fluids—such as those containing D5%
- c. Continuous ambulatory peritoneal dialysis (CAPD) or acute peritoneal dialysis
- d. CVVHD or CAVHD—dialysate may contain dextrose of which 35-45% may be absorbed
- e. (a), (b), (d)
- f. All of the above

57. Hypoalbuminemia may affect magnesium levels.

- A. True B. False

58. Factors affecting increase and decrease in serum albumin and prealbumin.

Albumin:

Prealbumin:

Increased in:

Decrease in:

Increase in:

Decrease in:

59. Define protein sparing.

60. What does each number represent in the report of a blood sample?

140 / 101 / 17
-----< 92
3.4 / 25 / 1.2

69. Differentiate between B₁₂ deficiency and folate deficiency.

70. Proton pump inhibitors (like Erythromycin and Reglan) can be added for a short period of time to increase gastric motility.

A. True

B. False

71. What is a modular enteral formula?

72. What drug interferes with clinical laboratory values or nutrients. One drug may have an increase or decrease by different types of mechanisms.

Drug	Laboratory Test	Increase / Decrease	Mechanism of action
Acyclovir			
Aluminum antacids			
Amioderone			
Amphotericin B			
Captopril			
Cisplatin			
Furosemide (Lasix)			
Gentamicin			
Insulin			
Phenobarbital			
Phenytoin			
Spirolactone (Aldactone)			
Vasopressin			
Vancomycin			

73. What liver conditions have been associated with TPN?

1.

2.

74. Describe the refeeding syndrome.

75. What are the consequences of phosphorous deficiency?

76. These are medications used in the intensive care unit to treat hypotension or cardiac compromise that are delivered via continuous infusion. Can you initiate or continue enteral nutrition and under which circumstances?

- Dopamine
- Dobutamide
- Phenylephrine (Neo-Synephrine)
- Norepinephrine (Levophed, levarterenol)

77. Opioid analgesics may produce undesirable effects, like nausea and vomiting, constipation, urinary retention, cough reflex suppression, orthostatic hypotension, and CNS depression.

- Morphine
- Codeine (Methylmorphine)
- Hydromorphone (Dilaudid)
- Meperidine (Demerol)
- Methadone (Dolophine, Methadose)
- Oxycodone hydrochloride (Percocet, Percadan, Tylox)
- Propoxyphene (Darvon, Dolene)
- Fentanyl (Sublimaze)- synthetic narcotic with analgesic potency of about 80 times that of morphine

A. True

B. False

78. A 35-year-old Miss R had an antrectomy and massive resection of the small bowel leaving 3.5 feet of the distal jejunum and all of ileum. What is the long-term nutritional support?

- Lifelong TPN
- Lifelong tube feeding of an elemental formula.
- Lifelong tube feeding of a polymeric formula.
- Modified oral diet after a transitional tube feeding to prevent dumping syndrome, drug therapy to slow transit time, and vitamin/mineral supplements as necessary.

79. Which of the following medications is given to bind bile acid salt as in the case of diarrhea?

- Cholestyramine
- Carafate
- Colace
- Cimetidine

80. Which of the following is NOT the correct therapy for diabetic patients with gastroparesis undergoing transition from parenteral to enteral tube feeding?

- Parenteral metoclopramide (Reglan) during initial transition phase.
- Jejunostomy or transpyloric feeding route.
- Intermittent feedings; 400 cc of a high-fat, fiber-containing formula, 4 times daily.
- Continuous pump infusion.

81. Radiation to the pelvic area frequently causes radiation enteritis that results in:

- diarrhea and steatorrhea
- hypoglycemia.
- gastric stasis
- esophagitis

82. Dehydration from diarrhea can be life-threatening. Colas and sweet drinks, sports drinks and tea or water are NOT recommended. Explain in terms of carbohydrate, sodium, potassium and osmolarity content.

83. One potential complication of ileal resection is:

- constipation
- fat soluble vitamin deficiency
- hyperglycemia
- osteoradionecrosis

84. Alopecia is one symptom of malnutrition. Which of the following might be a possible cause of this condition?

- vitamin B12 deficiency
- Zn⁺⁺ deficiency
- vitamin K deficiency
- vitamin C deficiency

85. If a patient reported an allergy to egg whites, which of the following components of a total nutrient admixture should be omitted from the solution:

- dextrose
- lipid emulsion
- amino acids
- vitamins

86. Acute pancreatitis is usually associated with which two diseases?

- Type I diabetes mellitus and alcohol abuse.
- alcohol abuse and biliary tract obstruction
- short bowel syndrome and AIDS
- Type I diabetes mellitus and cardiomyopathy

87. What percentage of kilocalories should be provided by soy or safflower oil (sources of linoleic acid) to prevent essential fatty acid deficiency?

88. Neuromuscular blocking agents decrease oxygen requirements and are used in the intensive care unit. These drugs do not affect GI motility, but patients who require them are often also on increased doses of narcotic pain medication that can slow GI motility. Give three names of these drugs.

89. A dose of 500 – 2500 U lipase/kg/meal is usually needed during pancrealipase therapy. Describe what is the dosage of MT-16.

90. Hypercalcaemia in spinal cord injury is secondary to:

- excessive calcium intake
- immobility
- elevated parathyroid hormone
- renal failure
- A fatty liver can result when a patient is overfed with:
- protein, carbohydrate, alcohol
- calories, trace minerals, alcohol

91. Define the following terms associated with the various routes of feeding.

Gastrostomy or PEG	
Jejunostomy or Direct PEG	
Gastrojejunostomy	
Transpyloric	
Nasogastric	
Orogastric	
Nasojejunal/orojejunal	
PEG-J	

92. In the treatment of nausea, vomiting, and fullness there are the following considerations. Which one would you choose?

- Slow enteral infusion (EN)
- Use a more calorically dense formula to decrease total volume required (Note: hydration has to be present)
- Glucose control (<200 mg/dl) to avoid gastroparesis from hyperglycemia
- Position the feeding tube transpylorically
- Trial of antiemetic or a prokinetic

93. Potential causes of feeding tube occlusion.

Tube feeding French size

- A. True B. False

Contaminated formula can cause formula to coagulate

- A. True B. False

Medication clogs—inadequate flushing with medications

- A. True B. False

Formula infusing at a slow rate (and low pH of stomach)

- A. True B. False

94. What are the gastric residual volume (GRV) allowed by the ICU Protocol at Scott & White.

95. After the placement of feeding tube should an X ray (KUB) follow by protocol at Scott & White.

- A. True B. False

96. Protein provision must be higher considering a surgical patient (vs. medical patient) because of losses through surgical drains (pericardial, abdominal, ostomies, chest, biliary, ventricular shunts, etc.)

A. True

B. False

97. Deficiency of the mineral _____ may be implicated in the Roux-En-Y gastric bypass or chronic jejunal enteral feedings that suffer from anemia, gait disturbances, or optic neuropathy without a direct cause.

98. The recommended glucose levels for the ICU is between 140 – 180 mg/L

A. True

B. False

99. The new definition of “malnutrition” includes (1) “starvation-related malnutrition”; (2) “chronic disease-related malnutrition”; and (3) “acute disease-“ or “injury related malnutrition”. Acute or injury-related malnutrition includes: the body’s inflammatory response, burns, trauma or close head injury as defined by Gordon L. Jensen, et. al. JPEN 2010. Which role plays albumin and prealbumin?

IV. EVALUATION

- A. Submit completed written assignments and the clinical workbook section to the dietitian as requested.
- B. Schedule rotation evaluation for final day of the rotation.
- C. Submit completed evaluation forms and written rotation assignments to the Educational Coordinator no later than once a week from the last day of the rotation.

PEDIATRIC READING LIST

Pediatric Nutrition Handbook (6th Edition)

- | | | |
|---|------------|---------------------|
| 1) Infant Formulas | Chapter 3 | Pages 69-77 |
| 2) Preterm Infant | Chapter 4 | Pages 83-92; 97-104 |
| 3) Parenteral Nutrition | Chapter 22 | Pages 523-537 |
| 4) Formula Selection
(Enteral Nutrition) | Chapter 23 | Pages 547-554 |
| 5) Assessment | Chapter 24 | Pages 562-564 |

Define the following Common Diagnosis and Terminology:

Bronchopulmonary Dysplasia (BPD):

Cerebral Palsy (CP):

Cleft Lip:

Cleft Palate:

Congenital Diaphragmatic Hernia:

Congenital Heart Disease (CHD):

Cystic fibrosis (CF):

Failure to Thrive (FTT)

Gastroparesis

Gastroschisis

Global Developmental Delay (GDD)

Hydrocephalus

Ileus

Nephrotic Syndrome

Neutropenia

Non-Accidental Trauma (NAT)

Pancreatitis

Perforated Anus

Phenylketonuria (PKU)

Prader-Willi syndrome

Respiratory Distress Syndrome

Spastic/Athetoid/Ataxia Quadriplegia

Spinal muscular atrophy (SMA)

Small for gestational age (SGA)

Short Bowel Syndrome (SBS or Short Gut)

VP Shunt

**Scott and White
McLane Children's**

Indications and Types of Infant Formula

<u>FORMULA</u>	<u>INDICATIONS</u>	<u>UNIQUE PROPERTIES</u>	<u>EXAMPLES**</u>
Milk based	Breast milk substitute for term infants	Breast milk Variable whey:casein Contains DHA/ARA	Enfamil Lipil, Enfamil Premium Infant, Similac Advance , Gerber Good Start Gentle Plus
Milk- based	Lactose sensitive (not for galactosemia)	Lactose feed or reduced lactose	Similac Sensitive , Enfamil Gentlease
Soy-based	Breast milk substitute for infants with lactose intolerance or milk protein allergy*	Lactose free, some sucrose	Enfamil Prosobee Similac Soy Isomil Good Start Soy Essentials Similac Expert Care Diarrhea (fiber)
Premature	Breast milk substitute for <37 weeks gestational age	Low Lactose Whey:Casein 60:40 High Ca/PO4 20 and 24 kcals/oz	Similac Special Care Advance Similac HMF CL Enfamil Premature Lipil Enfamil HMF
Premature Transitional	Discharge formula for preemies	22 kcals/ounce RTF or Powder with DHA/ARA	Similac Expert Care Neosure Enfamil Enfacare
Older Infant	Transition to whole milk	Varies	Similac Go & Grow / Soy Gerber Good Start 2/ Soy Enfagrow Toddler / Soy
Casein Hydrosylate	Milk/soy protein allergy Malabsorption/SBS	Casein hydrosylate Sucrose-free Lactose Free Varying LCT/MCT	Similac Expert Care Alimentum Nutramigen Lipil Pregestimil Lipil
Amino Acid Based	Food Allergy / EE Malabsorption / SBS	Amino Acids Lactose Free, Sucrose Free	Elecare Infant Neocate Infant PurAmino (Nutramigen AA)
Fat Modified	Defect in digestion, absorption or transport of fat	Contains increase % of kcals as MCT	Similac Expert Care Alimentum Pregestimil Lipil Portagen Enfaport Lipil
Carbohydrate- modified	Simple sugar intolerance	Requires addition of CHO source	RCF, 3232 A
Amino Acid- modified	Inborn errors of metabolism	Low or devoid of specific amino acids that cannot be metabolized	Multiple products
Electrolyte modified	Low Renal Solute Load	Decreased Na/K/PO4 content	Similac PM 60/40

*Children allergic to milk protein may be allergic to soy protein

**Examples on bold typeface are on formulary at Scott & White

Choosing the right formula for your patient

Infant Formulas

Standard Term Formulas

- Cow's milk-based: whey and casein
- Higher in protein than BM
- Primary carbohydrate is lactose
- Standard mixing is 20 kcal/oz
 - Similac Advance Early Shield

Lactose-free Formulas

- Cows milk-based- not for cow milk protein sensitivity
- Corn syrup solids are main source of carbohydrates
 - Similac Sensitive

Soy formulas

- Soy protein and Lactose free
- 30-64% of infants with cow's milk protein sensitivity, will also be sensitive to soy protein
- Higher in vitamins and minerals due to lower bioavailability
- Not recommended for premature infants due to poor growth and reduced bone mineralization
 - Similac Isomil

Premature Infant Formulas

- Higher in protein, calcium, phosphorus and some vitamins
- High in MCT (40-50%)
- Carbohydrate mix of lactose and glucose polymer due to lower lactase activity in premies and allows for lower osmolality
 - Similac Special Care 20, 24, 30 kcal/oz
 - Similac Special Care 24 kcal High Protein (3.3 g protein/100 kcal)

Human Milk Fortifier

- For institutional use only
- To increase kcal, protein, calcium, phosphorus, calcium, and other vitamins and minerals
 - Initiate with 1 packets/50 mL EBM (22 kcal/oz)
 - Can advance to 2 packets/50 mL EBM (24 kcal/oz)
- Not recommended for discharge
 - EBM can be fortified with formula at discharge or feedings can be alternated with BM and formula

Post Discharge Formulas (for Premature Infants)

- Recommended to continue until 9-12 months corrected age
- Higher amounts of Protein, Calcium, Phosphorus, and Vitamins A and D than term formula
- Standard mixing is 22 kcal/oz
 - Similac Neosure

Specialty formulas

Prethickened formulas

- To help reduce frequent spit-ups
- Added rice starch but nutrients are not displaced
- Flow freely through standard nipple
- Should not be mixed past 24 kcal
 - Similac Sensitive RS (lactose-free)

Semi-Elemental- hydrolyzed protein

- For protein allergy and malabsorption
- Protein source is casein hydrolysate + amino acids
- 33% MCT
 - Alimentum

100 % Elemental

- For intact protein intolerance, allergies, malabsorption, gut resection
 - Elecare
 - Fructose, galactose, lactose, gluten and soy free
 - 33% MCT
 - 100% free amino acids
 - Neocate Infant DHA & ARA
 - Sucrose, lactose, galactose free
 - 33% MCT
 - 100% free amino acids

Pediatric Formulas (Ages 1-10)

Standard Formulas

- Whey and Caseinate
- Lactose free
- Comes with or without fiber
- Pediasure, Pediasure 1.5

Elemental

- Pediasure Peptide
 - Peptide Based; Hydrolyzed whey
 - 50% MCT
 - Lactose, Gluten Free
- Neocate Junior
 - 100% Amino Acid Based
 - MCT, Safflower oil
 - Hypoallergenic
- Elecare
 - Free L-amino acids
 - For infants/children who cannot tolerate intact or hydrolyzed protein
 - 33% MCT
 - Free of Lactose, Gluten, Soy, Milk Protein, Fructose, & Galactose

Adult Formulas (≥ 10 years)

Standard Formulas

- Osmolite 1.2
 - High protein, low-residue formula
 - 20% MCT
 - Lactose, Gluten Free, Kosher
 - Usually chosen as “house” formula
- Jevity 1.2
 - High protein
 - Fiber Fortified
 - Lactose, Gluten Free, Kosher
- TwoCal HN (60 kcal)
 - High calorie, high protein
 - For patients requiring low-volume feedings
 - Lactose, Gluten Free

Elemental Formula

- Vital (30 kcal)
 - Peptide Based; Hydrolyzed whey
 - MCT:LCT ratio 47.5:52.5
 - Lactose, Gluten Free

- Vital AF 1.2
 - Peptide based, Hydrolyzed whey
 - Contains fish oil (EPA & DHA) to help manage inflammation
 - MCT:LCT ratio 45:55
 - Lactose, Gluten Free

- Vivonex RTF (30 kcal)
 - 100 % Free Amino Acid Based (28% from BCAA)
 - 10% Calories from fat, 70% Calories from carb, 20% Calories from protein
 - Lactose, Gluten Free
 - Reduce pancreatic stimulation

Pediatric/Neonatal Nutrition Assessment

- **PEDIATRICS (Birth to 18 years old)**

- Determine weight status using the age and gender specific growth charts available from the National Center for Health Statistics
 - Weight/age, head circumference/age, height/age, weight/length, and body mass index (BMI) are plotted on the growth curves and compared to the 50th percentile age.
 - Anthropometric Indexes Associated with Protein-Energy Malnutrition (PEM): Degree of PEM

Type PEM	Anthropometric Index	Normal	Mild	Moderate	Severe
Chronic (stunting):	Height for age as % standard *	95	90-94	85-89	<85
Acute (wasting):	Weight for age as % standard *	90	75-89	60-74	<60
	Weight for height as % standard *	90	80-89	70-79	<70

- The American Academy of Pediatrics (AAP) considers a child with a body mass index (BMI) plotting greater than the 85th percentile to be at risk for overweight. Those with a BMI that plots greater than the 95th percentile are considered overweight and at risk for obesity.

- **PREMATURE INFANTS**

- Premature growth charts (Babson/Benda, IHDO, Fenton, or Ehrenkranz) will be utilized to determine time to regain weight and determine average daily weight gain goal.
- Time to regain birth weight will be evaluated.
- Average daily weight gain goals on 15-20 g/kg/day once regained birth weight to be documented.
- Head circumference, length, and size for gestational age will be evaluated.
- Head circumference: goal of 0.5 to 1.0 cm/week
- Length 0.8 to 1.1 cm/week
- Size: Weight, head circumference, length for gestational age: AGA,SGA,LGA

PEDIATRICS (Birth to 17 years of age)

Estimated Energy and Protein Requirements for infants and children:*

Category	Age (years)	REE (kcal/kg/day)	RDA (kcal/kg/day)	Kcal/cm	Protein (grams/kg/day)
Infants	Birth-5 months	55	108	-	2.2
	5-12 months	55	98	-	1.6
Children	1-3	55	102	-	1.2
	4-6	45	90	-	1.1
	7-10	40	70	-	1.0
Males	11-14	30	55	15.9	1.0
	15-18	30	45	17	0.9
	19-24	25	40	16.4	0.8
Females	11-14	30	47	14	1.0
	15-18	25	40	13.5	0.8
	19-24	25	38	13.4	0.8

* From Recommended Dietary Allowances (RDA)

Adjustments for special needs and developmental conditions:

A. Chronic Hospitalized Children:

RDA of kcal/kg of IBW; Protein g/kg of actual body weight

B. CHD (Congenital Heart Disease):

Stressed: 100-120 kcal/kg of actual body weight

Maintenance: 120 kcal/kg of IBW or 150-180 kcal/kg of actual body weight

C. Cerebral Palsy (ages 5-11):

Spasticity: Moderate 13.9 kcal/cm ht
Severe 11.1 kcal/cm ht

Athetoid: 13.9 kcal/cm ht

Ataxia: 11.1 kcal/cm ht

D. Down's Syndrome:

Males: 16.1 kcal/cm ht

Females: 14.3 kcal/cm ht

E. Cystic Fibrosis:

Energy Needs: 120-150% RDA (No more than 200% RDA)

Protein Needs: 150-200% RDA (No more than 4 g/kg/day)

F. Obesity:

If >120% IBW use kcal/cm to estimate energy needs.

G. Vent Dependent or very little movement (i.e. bed rest):

Use REE to determine energy needs

Calculating energy needs for catch-up growth:

$$\text{Kcal/kg/day} = \frac{\text{IBW in kg (50}^{\text{th}}\text{tile wt/ht)} \times \text{kcal/kg/day (RDA for age)}}{\text{Actual weight (kg)}}$$

Estimate protein needs using the same formula.

NEONATES:

Recommended energy and protein needs for growth of the stable Preterm Infant:

Parenteral:	3.0-4.0 gm Protein/kg/day	80-120 Kcal/kg/day
Enteral:	3.5-4.0 gm Protein/kg/day	120-150 Kcal/kg/day

For the acutely stressed infant realistic maintenance needs are:

Protein:	1-1.4 gm Protein/kg/day
Energy:	50-60 Kcal/kg/day

3. Determining Fluid Needs

- **PEDIATRICS**
 - 1-10 kg 100/ml/kg/day
 - 11-20 kg 1000/ml plus 50ml for each kg above 10kg
 - >20kg 1500/ml plus 20 ml/kg for each kg above 20 kg
- **PREMATURE INFANTS**
 - >1000 gm = 150 mL/kg/day
 - < 1000gm = 100-150 mL/kg/day

*These are estimated minimum fluid needs. Larger or smaller volumes may be necessary depending on the size of the infant and the multiple factors influencing needs. Continuous monitoring is necessary to make appropriate adjustments.

Pediatric Case Studies

Case Study 1:

Aliyah is a 5 month-old diagnosed with RSV. She was born at 24 weeks and was in the NICU for 2 months. She was on TPN during her NICU stay and was transitioned to oral feeds of Neosure 24 kcals/ounce prior to discharge. She was doing well on feeds at home until 2 days ago when her oral intake started to decline. She has also been experiencing non-bilious emesis after each feeds over the last 2 days.

Ht: 52 cm FOC: 33 cm

Wt: 3.25 kg

Home Feeds: Neosure 24 kcal 45 ml q 3 hours

1. Fill in the following:

Ht/age: Wt/age: IBW: % IBW:

Wt/Ht: % FOC:

2. Calculate the patient's needs:

Calorie:

Protein:

Fluids:

3. Are her home feeds appropriate? If no, explain why and how much should the patient be taking?

Case Study 2:

Mason is a 12 year old diagnosed with cystic fibrosis (CF). He is admitted for CF exacerbation and poor weight gain over the last 4 months. He is on home feedings of 4 cans of Pediasure 1.5 nocturnally at 95 ml over 10 hrs with water flushes of 30 ml of water before and after feedings. He eats regular meal during the day but his oral intake has declined over the last week.

Ht: 158 cm

Wt: 34 kg

1. Fill in the following:

Ht/age: Wt/age: IBW: % IBW:

Wt/Ht:

2. Calculate the patient's needs:

Calorie:

Protein:

Fluids:

3. Aside from meeting the patient's nutritional needs, what must the patient be compliant with in order to prevent malabsorption?

4. Is his home TF regimen/diet appropriate? If no, explain why and what would you recommend for his TF regimen/diet?

It is appropriate for infants less than 12 months to be on cow's milk. True or False
Explain your answer:

Case Study 3:

William is a 15 year-old with a past medical history of cerebral palsy, quadriplegia, seizure disorder and dysphagia. He has a gastrostomy button and baclofen pump. He is admitted for sepsis and is on the ventilator. He has a stage III decubitus ulcer on his sacrum and wound care has been consulted. He has been NPO for the last 3 days and the nutrition team has been consulted to start tube feedings.

Wt: 44 kg

Ht: 160 cm

1. Calculate the patient's needs:

2. Choose the appropriate formula and/or modular and calculate the rate to run the TF continuously.

Case Study 4:

Skylar is 7 year-old with celiac disease with newly diagnosed celiac disease. She was growing appropriately however, has had a 10% weight loss over the last 2 months due to abdominal pain, nausea, vomiting and diarrhea. The nutrition team is consulted to start TPN. Is the form of nutrition support appropriate? Explain your answer. What diet should the patient be on when she is weaned of nutrition support?

Formula Recipe Assignment I

What are the primary differences between preterm formulas and standard infant formulas?

For the following, provide total mL/kg, kcal/kg and grams protein/kg:

1. 24 cal/oz Similac Special Care at 18 mL q 3 h for a 900 g infant.
2. 27cal/oz Similac Special Care (made with SSC 24 High Protein) at 22 mL q 3 h for a 1200 g baby.
3. 24 cal/oz EBM (preterm) with HMF at 24 mL q 3 h for a 1300 g infant.
4. 22 cal/oz Neosure at 40 mL q 3 h for a 2100 g infant.
5. 22 cal/oz EBM (term) with Neosure at 35 mL q 3 h for a 2210 g baby.
6. TPN @ 6.0 mL/hr with 15% dextrose, 3 g protein/kg/day, 3 grams lipids/kg/day for a 1100 g infant.
7. TPN @ 4.8 mL/hour of 10% dextrose, 3.0 g pro/kg/day, 2 grams lipids/kg/day **and** EBM 20 cal/oz at 5 mL q 3 for a 1200 g baby.

Formula Recipe Assignment II

Develop infant formula recipes for babies at home.

1. Baby A is going home on Neosure 24 kcal/oz formula. Determine how many scoops of formula and how much water will be needed to make a ~ 6 oz bottle.
2. Baby B takes expressed breast milk fortified with Neosure powder to make 22 kcal/oz. How many teaspoons of Neosure powder are needed to fortify a 3 oz bottle of EBM to 22 kcal/oz?
3. Baby C is preparing to go home on Neocate 22 kcal/oz. Mother of child wants to make a large volume of formula to cover several feeds during the day. Develop a recipe to make 21 ½ oz. Formula recipe measurements can be given in household measuring cups or scoops.

Develop infant formula recipes for babies in the hospital.

How much powder in grams and sterile water in milliliters? What is the total volume?

1. Baby K takes 32 ml of Alimentum 27 kcal/oz q 3 hours.
2. Baby S takes 60 ml of Elecare 24 kcal/oz q 4 hours.
3. Baby D is on continuous feeds of Neosure 22 cal/oz at 25 ml/hr.

NICU Nutrition Competency Quiz

- At adjusted age 33 $\frac{3}{7}$ weeks, Baby Girl KL weighed 1.76kg on 10/30. Her previous weight on 10/23 was 1.615 kg. Calculate average daily weight gain and assess appropriateness.
 - 20.7 gm/day gain – appropriate
 - 11.8 gm/kg/day gain – appropriate
 - 11.8 gm/kg/day gain – not appropriate
 - 14.5 gm/kg/day gain – not appropriate
- What is the corrected age of Baby AB born at 27 $\frac{4}{7}$ weeks who is now 64 days old?
 - 36 $\frac{5}{7}$ weeks
 - 36 $\frac{6}{7}$ weeks
 - 44 $\frac{1}{7}$ weeks
 - 37 weeks
- Assess the following growth parameters for gestational size. Gestational age 35 weeks, birth weight 1.76kg, length 41cm, head circumference 28cm.
 - SGA
 - AGA
 - LGA
 - None of the above
- Baby QZ, with weight 850gm, is now adjusted age 28 $\frac{6}{7}$ weeks has the following TPN/Lipids ordered: D 12.5%, 2 gm protein/kg/day, 3 gm lipids/kg/day @ 4.78mL/hr x 24 hours. What changes would you make to the TPN/Lipids?
 - Increase fat to 3gm/kg/day
 - Increase protein to 3gm/kg/day
 - Decrease dextrose to 10%
 - Decrease protein to 2gm/kg/day
- For a 1.2 kg premature infant, calculate intake and adequacy of calcium and phosphorus from term expressed breastmilk with Similac Human Milk Fortifier 24 cal/oz at 23mL every 3 hours.
 - Calcium 144mg/kg, Phosphorus 80mg/kg – adequate
 - Calcium 208mg/kg, Phosphorus 120mg/kg – adequate
 - Calcium 45mg/kg, Phosphorus 23mg/kg – inadequate
 - Calcium 102mg/kg, Phosphorus 76mg/kg – inadequate
- Human Milk Fortifier would typically be indicated for use in which of the following circumstances?
 - Birth weight <1800gm
 - Elevated serum phosphorus level
 - AGA
 - Term infant taking Similac Advance 22 cal/oz and fortified EBM.
- Baby Boy JH, who was born at 23 $\frac{2}{7}$ week old, is now at adjusted age 29 $\frac{6}{7}$ weeks and 1.12kg, with Ca 9.5, Phos 2.7L, alk phos 997H. Choose the best formula, volume and route.
 - Prosobee 24 cal/oz at 22mL every 3 hours via OG tube
 - Similac Special Care 24 cal/oz at 22mL every 3 hours via OG tube
 - Neosure 24 cal/oz at 22mL every 3 hours via OG tube
 - Similac Special Care 22 cal/oz at 25mL every 3 hours via OG tube

8. Nipple feeds should be started by 30 weeks.

- a. True
- b. False

9. Which statement is true regarding term Baby Boy AM who is now POD # 12 s/p gastroschisis closure?

- a. Begin feeds with an elemental formula, such as Elecare.
- b. Begin feeds with a whole protein formula, such as Similac Advance.
- c. Begin feeds with a whole protein formula, such as Neosure.
- d. Baby Boy AM will never be able to be fed enterally.

10. Baby Girl Cutie was born at 26 weeks and now has the following labs: Ca 10.1, Phos 1.8, Mg 2.3, Alk Phos 1127, Direct bili 0.1. What do these labs indicate? (use ADA Neonatal Nutrition Pocket Guide pg 17 for normal labs)

- a. Anemia of prematurity
- b. TPN cholestasis
- c. Retinopathy of prematurity
- d. Osteopenia of prematurity

11. How many grams/kg/d average would you expect a 28 week 1250 g infant to gain?

- a. 35-40 gm/kg/day
- b. 5-10 gm/kg/day
- c. 20-30 gm/kg/day
- d. 15-20 gm/kg/day

**S&W Diabetes Clinic Reading List
Required**

Anderson JW. Nutrition management of diabetes mellitus. Ch. 57 in *Modern Nutrition in Health and Disease*. Shils and Young, 7th ed., 1998.

Nutrition Guide for Professionals: Diabetes Education and Meal Planning. American Diabetes Association and the American Dietetic Association. Margaret Powers, ed., 1988.

Abrams RS and Coustan DR. Gestational Diabetes Update. *Clinical Diabetes*. 8(2): 19-30, 1990.

Nutrition Principles for the Management of Diabetes and Related Complications. *Diabetes Care*, 17(5). May 1994.

Nutrition Recommendations and Principles for People with Diabetes Mellitus. *JADA*, 94(5). May 1994.

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
CLINICAL WORKBOOK: Diabetes Clinic/Endocrinology**

1. Discuss the major differences between Type 1 Diabetes and Type 2 Diabetes. Include etiology, pathology, treatment, and diagnosis.

2. Briefly define and be prepared to discuss the following.
 - a. Fasting blood sugar (FBS)
 - b. Glycosylated hemoglobin (HgA1C)
 - c. Self Blood Glucose Monitoring
 - d. Postprandial blood sugar (PC)
 - e. Urine ketone testing f Microalbumin (random and 24 hour)
 - f. Cardiac Risk Profile (CRP)
 - g. Diabetic nephropathy
 - h. Diabetic neuropathy
 - i. Diabetic retinopathy
 - j. Gastroparesis
 - k. Diabetic amyotrophy
 - l. Diabetic ketoacidosis
 - m. Syndrome X
 - n. Somogyi Effect
 - o. Dawn phenomenon
 - p. Hypoglycemia
 - q. Hypoglycemia unawareness
 - r. Hyperglycemic hyperosmolar non-ketotic syndrome
 - s. Fructosamine testing
 - t. Polyphagia
 - u. Polyuria
 - v. Nocturia
 - w. Ketonuria
 - x. Polydipsia
 - y. Gangrene and tissue necrosis
 - z. Mucormycosis

3. Discuss the following diabetes medications. Include meal planning considerations (timing/content of meals) and any other special considerations.
 - a. Glyburide (Micronase, DiaBeta) Glynase
 - b. Glipizide (Glucotrol XL, Glucotrol)
 - c. Glimepiride (Amaryl)
 - d. Acarbose (Precose)
 - e. Metformin (Glucophage, Glucophage XR)
 - f. Repaglinide (Prandi)
 - g. Rosiglitazone Maleate (Avandia)
 - h. Pioglitazone HCL (Actos)
 - i. Nateglinide (Starlix)

4. Discuss the following types of insulin including meal planning considerations. Plot the action of each insulin on a graph.
 - a. Rapid acting (Humalog)
 - b. Short acting (Regular)
 - c. Intermediate acting (NPH, Lente)
 - d. Long acting (Ultralente)
 - e. Peakless (Insulin Glargine, Lantus)
 - f. 70/30
 - g. 50/50
 - h. 75/25

5. Discuss the advantages of dietary fiber in relation to diabetes, blood sugar, and weight control.

6. What are the symptoms, treatments, and causes of hyperglycemia?

7. What are the symptoms, treatments, and causes of hypoglycemia?

8. Discuss gestational diabetes mellitus (diagnosis, etiology, treatment, and diet recommendations).

9. Discuss different meal planning approaches including advantages and disadvantages. (Examples: Exchange system, carbohydrate counting, no concentrated sweets, food guide pyramid, point system etc.)

10. Discuss continuous subcutaneous insulin infusion (CSII). Include which patients would be good candidates and appropriate nutrition guidelines. Discuss other special considerations for insulin pump therapy.

DIABETES CLINIC CASE STUDIES

CASE #1

Ms. J is 24 years old. She was diagnosed with Type I DM at age 14. Ms. J takes 2 insulin injections daily, N + Humalog before breakfast and supper. Ms. J is an elementary school teacher.

Lab: HgA1C – 8.4%
Microalbumin/Creatinine – 7
Cholesterol – 175 Trig – 140 HDL Chol – 39 LDL Chol – 110

Parameters:

Ht 5' 4" 140#

Blood Pressure: 110/70

Diet History:

Breakfast 2 pcs toast w/margarine, 8 oz. Orange juice 6:30

Lunch Sandwich w/meat and cheese, mayonnaise, lettuce and tomato, chips,
12:30 fruit, and diet soda

Supper Frozen Dinner (lowfat variety), salad with dressing, iced tea w/sugar sub,
6:30 fruit. Also eats out 2-3 times per week

Snacks AM – nothing (if she has a reaction she has a candy bar)
 PM – fruit or peanut butter crackers
 Bedtime – cereal with milk or fruit (she only has a snack if she is hungry)

Ms. J has been sent to you for Medical Nutrition Therapy. She would like to improve her HgA 1 C and is concerned about having hypoglycemic reactions. Develop an appropriate meal pattern for her. What would you discuss with her?

CASE #2

Mr. S is newly diagnosed with diabetes. He is sent to you for Medical Nutrition Therapy. Mr. S hopes to control his diabetes with diet and exercise. Mr. S is mildly hypertensive. Mr. S is presently on no structured exercise program. He works regular hours, 8-5 and is sitting at his desk doing computer work throughout most of the day.

Parameters:

Ht: 6'0" Wt: 240# Age 55

Mr. S states that he has had no major weight changes recently but over the last 20 years has gradually gained 20 – 30#.

Labs:

2/10 glu – 146 (fasting)

2/20 glu – 132 (fasting)

Chol: 220 Trig: 243

HDL:35 LDL: 138

Diet History:

Breakfast: Usually omitted. Black coffee to drink.

Lunch: Fast foods, typically hamburger, french fries, and soda. Mr. S would be Willing to take his lunch to work with him.

Supper: Cooked meal at home includes 4-6 oz. portion of meat, 1-2 buttered veg, potatoes or rice, 1-2 slices of bread, sweetened ice tea.

Snacks: Sodas, 2-3 average per day and candy or chips from the vending machine. Bowl of ice cream before bed.

Mr. S is very motivated to control his diabetes. Develop a plan for him. What would you discuss with him?

CASE #3

Mrs. M is 29 weeks pregnant. She is 35 years old. She is currently unemployed. She has a family history of Type 2 DM.

Parameters:

Ht 5' 2" Wt 180# PPW 155#

Labs:

3 hr OGTT

Fasting	105
1 hr	195
2 hr	175
3 hr	155

Mrs. M is being sent to you for assistance with an appropriate diabetic diet.

Diet History:

Breakfast Bacon, egg, toast, and a large glass of OJ
8:00

Lunch Sandwich with bologna and mayonnaise, chips, fruit, and soda
12:00

Supper Fast food such as hamburgers and fries, pizza, or fried chicken, Mrs. M usually
6:30 drinks either soda or sweetened tea.

Snacks Cookies or fruit if eaten

Mrs. M is unable to drink milk. She is currently taking prenatal vitamins plus extra iron.
Develop a meal plan for Mrs. M. What would you discuss with her?

CASE #4

Mr. S is 33 years old. He has a 31 year history of Type 1 Diabetes. He has been on multiple injections and is now considering an insulin pump.

Parameters:

Ht 6' 1" Wt 215#

Labs: HgBA1C – 7.1%

Microalbumin/creatinine ratio: 3

Chol: 213 Trig: 66 HDL: 58 LDL: 142

Diet History:

Breakfast Nutrigrain bar, black coffee (breakfast is omitted some days).

Lunch Usually eaten out (Ex. BBQ meat, beans, potato salad, and bread. Iced tea with sweet – n- low).

Supper Usually eaten at home. 3-4 oz. portion of meat, 2 or more vegetables, 2 dinner rolls.

Snack Fat free pudding and 2% milk

Patient's wife was present and felt the description of typical meals was accurate, but there was also inclusion of more "junk foods" (i.e. chips, fast food meals, candy, and other sweets) on occasion.

What would you discuss with him?

**TEXAS A & M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: SCOTT & WHITE OUTPATIENT RENAL**

RENAL NUTRITION: Location: Scott & White Dialysis Center, Hospital and Clinic
Duration: 75-80 hours

Goal: To observe and work with the Renal Dietitians in dialysis, hospital and clinic services.
To be able to work independently as possible while under the supervision of the Renal Dietitian observing all rules and regulations on assigned duties and projects.
To develop a basic knowledge of Renal Nutrition by using critical thinking.

I. ROTATION PREPARATION: (Complete prior to starting rotation)

- A. Contact the Renal dietitian prior to the first day of the rotation to make necessary arrangements.
- B. Pick up the Renal Rotation Readings' Binder at the dialysis center- read articles assigned.
- C. Answer all the questions on the Renal Worksheet- typed, day 1
- D. Prepare a written list of goals and objectives specific to the Renal Rotation. Be prepared to discuss with the dietitian on Day 1.
- E. Come willing to learn and work and be flexible with work hours

II. ROUTINE DUTIES:

- A. Participate daily in the activities of the Renal Dietitian (work hours not always standard)
- B. Discuss daily research and homework assignments with the Renal dietitian
- C. Plan to prioritize daily activities
- D. Staff hospital service on second week of the rotation
- E. Cover assigned patients
- F. Complete assignments in a timely manner
- G. Explain and discuss all written assignments

III. ROTATION ASSIGNMENTS:

- A. Daily homework and or research assignments
- B. Case study due and presented on the last day of the rotation
- C. Complete a comprehensive exam in two parts
- D. Donate 2 articles to the Renal Reading's Binder
- E. Develop or update patient education material
- F. Prepare a renal recipe for patient taste testing or develop a recipe

IV. EVALUATION:

- A. Evaluation will be based upon performance, critical thinking process, comprehensive exam and assignments. All assignments are expected to be turned in on time. The intern is expected to discuss with the Renal Dietitian any problems in these areas.
- B. A verbal but informal evaluation will be given at the end of the first week. This will be a feedback session.
- C. A written formal evaluation will be given the last day of the rotation and the intern is expected to bring the evaluation forms at least the morning the day before.

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: SCOTT & WHITE OUTPATIENT RENAL
RENAL WORKSHEET**

1. List the major functions of the kidney.
2. Discuss the following Nephropathies and their effects on the kidney. Include nutritional requirements and recommendations.
 - a. Nephrotic Syndrome
 - b. Lupus Nephritis
 - c. Diabetic Nephropathy
 - d. Nephrolithiasis
 - e. General Focal Sclerosis
 - f. Goodpastures Syndrome
 - g. IgG&IgA Nephropathy
 - h. Glomerulonephritis
 - I. Polycystic Kidney Disease
 - j. Cholesterol Emboli Syndrome
3. Describe the following test and their use in determining renal function.
 - a. Creatinine clearance
 - b. BUN
 - c. Glomerular filtration rate
 - d. Albumin
 - e. serum potassium
 - f. serum sodium
 - g. Creatinine
 - h. Urinalysis
4. What is GFR of patients requiring chronic hemodialysis?
5. List nutritional goals for patients in renal failure.
6. List the nutrient requirement for adults for each method of therapy.
 - a. Pre-dialysis
 - b. Hemodialysis
 - c. CAPD (continuous ambulatory peritoneal dialysis)
 - d. Transplant
 - e. Acute Renal Failure
7. Why is it usually necessary to limit potassium and sodium in the diet of the CRD patient?
8. What percentage of the allowed protein should be HBV? Give examples of HBV proteins.
9. What is the easiest and safest way to increase calories in the renal diet?
10. Why are B-complex, ascorbic acid, folic acid, iron, calcium and zinc supplemented in the renal diet?
11. Calculate a diet for the assigned problems:
 - a. 115g Protein, 2g Na+, 3gK+, 2000ADA
 - b. 60g Protein, 3gNa+, 3gK+, 2000ADA

12. Fluid balance in a hemodialysis patient is evaluated by his dry weight. Define dry weight and describe symptoms of being above or below dry weight. List some complications seen as long term results of fluid abuse.

13. Explain the rationale for the more liberal sodium, potassium and protein amounts needed by the CAPD patients.

14. Name a medication frequently used on dialysis patients to prevent clotting on hemodialysis and clogging of catheter on peritoneal dialysis. List the differences between Nephrocaps and Nephrovite.

15. Indicate drug classifications and possible reasons for use of the following drugs in patients with renal failure.

- | | |
|----------------------------|-------------------|
| a. Erythropoietin (Epogen) | k. Sorbitol |
| b. Basaljel | l. Synthroid |
| c. Calcium citrate | m. Bicitra |
| d. Calcium carbonate | n. Captopril |
| e. Calcium acetate | o. Calcij ex |
| f. Nephrocaps | p. Allopurinol |
| g. Nephrovite | q. Mannitol |
| h. Kayexalate | r. Lasix |
| i. Minoxidil | s. Metolazone |
| j. Rocaltrol | t. ACE Inhibitors |

16. Define the following:

- | | |
|-------------|------------------------|
| a. Anuria | g. Hemodialysis |
| b. Oliguria | h. Peritoneal dialysis |
| c. Polyuria | I. Osteodystrophy |
| d. Anemia | j. Uremia |
| e. Azotemia | k. Secondary |
| f. GFR | hyperparathyroidism |

**TEXAS A&M UNIVERSITY DIETETIC
INTERNSHIP ROTATION INFORMATION: VA
General Medicine/Cardiac**

Location: Central Texas Veterans Health Care System

Rotation: Variable - 80 to 120 hours

- Goal: 1.** Increase knowledge of and enhance skills in meeting the nutritional care needs of patients with a wide variety of illnesses and conditions. Develop and increase skills in nutritional assessment. Promote continued development of competence in nutrition care delivery. Gain experience with a variety of feeding modalities, including tube feeding. Participate in a team approach to patient care.
- 2.** Gain skills in assessing nutrition education needs for inpatients and in planning and providing education to meet those identified needs. Enhance listening, interviewing, and communication skills. Develop ability to translate communication principles and technical nutrition information into patient counseling and teaching.

I. ROTATION PREPARATION: (Complete prior to starting rotation)

- A. Contact preceptor minimum of 1 week prior to the first day of the rotation to make necessary arrangements.
- B. Read the articles on the reading list.
- C. Complete Section A of Clinical Workbook prior to 1st day of rotation. Be prepared to discuss your answers with preceptor. Handwritten, no copying & pasting.

II. ROUTINE DUTIES:

- A. Arrive on time daily.
- B. Check email messages.
- C. Check for doctors' consults, screening referrals and follow-ups.
- D. Print out ward roster and screening forms for consults/referrals/follow-ups.
- E. Review patients for appropriateness of diet order (adjust diet orders and tray tickets as needed), adequate of PO intake, and potential changes in nutrition status.
- F. Keep ward roster updated with nutritional statuses and follow-up dates.
- G. Attend Interdisciplinary Team Meetings on ward to discuss patients.
- H. Meal rounds.
- I. Give diet instruction as needed.
- J. Look up any unfamiliar medications and their important nutritional side effects and abbreviations.
- K. Notes on your patients should be written out for review and approved or revised before they are entered in the medical record. Have all assigned notes completed and ready for review at least 60 minutes prior to end of work day.

III. ROTATION ASSIGNMENTS:

- A. Complete remainder of General Medicine workbook and turn in at least 3 days prior to the end of the rotation. Handwritten, no copying & pasting.
- B. You will then be expected to provide 1:1 diet education under supervision of preceptor (will be given opportunity to observe diet educations before being expected to educate on your own).
- C. If the opportunity arises, follow at least one patient receiving a tube feeding.
- D. Case Studies and other projects as assigned.
- E. Attend pertinent lectures and presentations.
- F. Review education materials available at the VA.

IV. EVALUATION

- A. Submit complete written assignments to the dietitian as requested.
- B. Submit completed evaluation forms and written rotation assignments to the Director no later than 3 days prior to the last day of the rotation.
- C. Incomplete or late assignments will usually result in failing the rotation.

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
CLINICAL WORKBOOK — GENERAL MEDICINE**

READING LIST – TO BE READ PRIOR TO ROTATION

1. Jensen, G. L., Hsiao, P. Y., & Wheeler, D. (2012). Adult nutrition assessment tutorial. *Journal of Parenteral and Enteral Nutrition*, 36(3), 267-274.
2. Lemon, S., Olendzki, B., Magner R., Li, W., Culver, A., Ockene, I., Goldberg, R. The Dietary Quality of Persons with Heart Failure in NHANES 1999–2006. *J Gen Intern Med*. 2010 February; 25(2): 135–140.
3. McClave, S. A., Martindale, R. G., Vanek, V. W., McCarthy, M., Roberts, P., Taylor, B., ... & Cresci, G. (2009). Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (ASPEN). *Journal of Parenteral and Enteral Nutrition*, 33(3), 277-316.
4. Mueller, C., Compher, C., & Ellen, D. M. (2011). ASPEN clinical guidelines nutrition screening, assessment, and intervention in adults. *Journal of Parenteral and Enteral Nutrition*, 35(1), 16-24.
5. Rhoda, K. M., Porter, M. J., & Quintini, C. (2011). Fluid and Electrolyte Management Putting a Plan in Motion. *Journal of Parenteral and Enteral Nutrition*, 35(6), 675-685.
6. White, J. V., Guenter, P., Jensen, G., Malone, A., & Schofield, M. (2012). Consensus statement of the academy of nutrition and dietetics/American Society for Parenteral and Enteral Nutrition: Characteristics recommended for the identification and documentation of adult malnutrition (undernutrition). *Journal of the Academy of Nutrition and Dietetics*, 112(5), 730-738.

HELPFUL REFERENCES:

Width, M., Reinhard, T. The Clinical Dietitian's Essential Pocket Guide. Lippincott Williams & Wilkins, 2009.

Fluid & Electrolytes Made Incredibly Easy! Lippincott Williams & Wilkins, 2011.

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
CLINICAL WORKBOOK — GENERAL MEDICINE**

SECTION A – COMPLETE PRIOR TO ROTATION

1. What is SGA? How is this tool used in patient care?
2. What does SOAP stand for? What type of information is included in each section?
3. What is the Nutrition Care Process (NCP)? What are the four steps of the NCP process?
5. List the four possible nutritional statuses assigned to patients at the VA. What is the required documentation and frequency of documentation associated with each category.
6. What role does albumin play in the body? What is the half life and normal serum levels? In which instances would albumin NOT a good indicator of nutritional status?
7. What is prealbumin? What is the half life and normal serum levels? Why is prealbumin considered a stronger nutritional indicator than albumin?
8. What is Coumadin/Warfarin used for? Which food products can affect the efficacy of this drug? What are examples of these foods?
9. Where is potassium stored in the body? What are the possible causes of hypokalemia?
10. How do you calculate corrected calcium?
11. How do you calculate ideal body weight (IBW) using the Hamwi method for males and females?

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
CLINICAL WORKBOOK — GENERAL MEDICINE**

SECTION B – COMPLETE PRIOR TO END OF ROTATION

1. Define the following terminology:
 - a. Diverticulosis & Diverticulitis
 - b. Hepatitis C
 - c. Cirrhosis
 - d. Ascites
 - e. Hepatic Encephalopathy
 - f. Acute Kidney Injury
 - g. Dysphagia
 - h. Ileostomy
 - i. Colostomy
 - j. Pneumonia
 - k. Delirium Tremens
 - l. Pleural Effusion
 - m. COPD
 - n. Congestive Heart Failure
 - o. Myocardial Infarction
 - p. Cardiovascular Accident
 - q. Transient Ischemic Attack
 - r. Atrial Fibrillation
 - s. Unstable Angina
 - t. Cardiac Catheterization

2. Determine the function, brand name and food/drug interactions (if any) of the following drugs commonly prescribed at the VA:
 - a. Ondansetron:
 - b. Omeprazole:
 - c. Pantoprazole:
 - d. Acetaminophen:
 - e. Furosemide:
 - f. Metoprolol:
 - g. Lisinopril:
 - h. Warfarin/Coumadin:
 - j. Heparin:
 - k. Spironolactone:
 - l. Prednisone:
 - m. Hydrochlorothiazide:
 - n. Ranitidine:
 - o. Docusate:
 - p. Allopurinol:
 - q. Rosuvastatin:
 - r. Sennosides:

3. List the words for these common abbreviations seen in the medical record.

- a. INR
- b. HTN
- c. GERD
- d. CVA
- e. TIA
- f. BRBPR
- g. CXR
- h. IV
- i. EKG
- j. SSI
- k. SOB
- l. NKDA/NKFA
- m. CABG
- n. DNR/DNI
- o. WBC
- p. EGD
- q. DKA
- r. MBS
- s. PICC

4. What are normal values for the following lab tests? What might be indicated if the value is NOT within normal limits (high/low)?
 - a. BUN
 - b. Creatinine
 - c. eGFR
 - d. INR
 - e. WBC
 - f. Sodium
 - g. C- reactive protein

5. Discuss the major differences between Type 1 and Type 2 Diabetes. Briefly summarize etiology, pathology, and treatment.

6. According to the American Diabetic Association, what are considered normal lab values for the following lab tests in a non-pregnant adult with diabetes:
 - a. HbA1c:
 - b. Preprandial plasma glucose:
 - c. Peak postprandial plasma glucose

7. For the following oral hypoglycemic agents, discuss their mode of action, as well as recommended timing for medication use.
 - a. Metformin:
 - b. Glipizide:
 - c. Actos:
 - d. Acarbose:

12. Define each of the following and their appropriate use. Which are most commonly utilized for jejunostomy tube feedings?

- a. Bolus feeding
- b. Intermittent feeding
- c. Continuous feeding
- d. Gravity drip feeding
- e. Trophic feeding

13. What are the uses and benefits of the following enteral formulas? What is the kcal/mL for each?

- a. TwoCal HN:
- b. Nepro:
- c. Suplena:
- d. Glucerna:
- e. Jevity:
- f. Promote with Fiber:
- g. Vital AF:
- h. Osmolite:

14. According to the Dietary Guidelines for Americans 2010, what is the recommended AI and UL for sodium intake? How does this differ from the 2005 recommendation? Which foods are commonly high in sodium?

15. Briefly explain what diuretics are and how they are utilized in the treatment of heart failure.
- a. Explain the difference between potassium-sparing diuretics, loop diuretics, and thiazide diuretics; provide examples of each.
 - b. Why must we monitor BUN and creatinine levels when providing this medication?
16. How do the following drug classes function in the body post-digestion?
- a. ACE inhibitors
 - b. Beta-blockers
17. What are possible causes of the following electrolyte imbalances? What can result if these imbalances are not corrected?
- a. Hypercalcemia
 - b. Hypocalcemia
 - c. Hypomagnesemia
 - d. Hyperkalemia
 - e. Hypokalemia
 - f. Hyponatremia
 - g. Hypernatremia

**Texas A&M University Dietetic Internship
Rotation Information:**

Gerontology, Wound Care, Rehabilitation and Hospice/Palliative Care

Location: Central Texas Veterans Health Care System
Temple Dietitian's office: Bldg. 221, Pod A, 2nd floor, Rm. 2A119

Goal: Increase knowledge and enhance skills in nutritional assessment of various resident population in Community Living Center (CLC) setting. Promote continued development of basic nutrition care skills and provide the opportunity to participate in a team approach to resident care. Emphasis is placed on assessment of nutritional status in the resident and understanding the physiological effects and appropriate nutrition intervention/s.

I. Rotation Information (Please read prior to rotation.)

- A. Contact the dietitian prior to the first day of the rotation to make necessary arrangements. (phone number contacts: 743-0932 or 743-1476)
- B. Review the CLC information included on the "Nutrition Screen, Assessment, Care and Reassessment Policy." (In your VA Orientation packet.)
- C. Prepare written list of personal goals and objectives for rotation to discuss with the dietitian on Day 1.
- D. See attached reading list (Attachment A) to prepare for the rotation. Prior to rotation, write a brief synopsis of the articles (what you learned, anything of particular interest to you, etc.). Bring the synopsis with you on your first day of rotation.
- E. Complete the medication interaction worksheet prior to completion of rotation (see Attachment B). Bring completed list on first day of rotation.
- F. Complete at least one special project by last day of rotation.

II. Routine Duties

- A. Print inpatient rosters daily.
- B. Complete work-up on new residents—chart review, interview and complete Extended Care Nutrition Assessment.
- C. Complete Extended Care Reassessment
- D. Complete Extended Care Monthly Notes.
- E. For all initial assessments, reassessments and monthly notes: appropriately document including the Nutrition Care Process. For initial assessments and reassessments, add a nutrition component to the resident's Care Plan in the "I care" plan format and complete the nutrition section (Section K) of the Minimum Data Set (MDS) form.

- F. Notify Doctors, Nurse Practitioners or Physician's Assistants of recommendations via e-mail or in person.
- E. Meal rounds at noon—dining room and Veteran rooms.
Make computerized diet changes as needed.
- F. Appropriate follow through on all recognized problems.
- G. Attend Interdisciplinary Treatment Team meeting on Tuesdays and Thursdays. Provide nutrition information on Veterans that are scheduled for discussion.
- H. Attend Resident Council meeting as rotation schedule allows
- I. Other duties as needed/assigned.

III. Rotation Opportunities

- A. Observe the following activities/procedures as time allows & as desired:
 1. Glucometer training
 2. Kinesiotherapy, Physical Therapy, and/or Occupational Therapy
 3. Resident monthly weights—bed scale, sling scale, wheelchair scale
 4. Resident group or Recreation activity
 5. Modified Barium Swallow, EGD, Colonoscopy
- B. Develop confidence/competence in the following areas:
 1. Effect of aging, surgery, infection, and wounds on nutritional status.
 2. Identify common diseases and nutritional deficiencies of the elderly.
 3. Observe factors determining food intake.
 4. Communicate effectively with the residents and/or members of their family and with the health care team.
 5. Understand educational needs and identify readiness for change and effective education techniques.
 6. Assessment of special needs to promote optimal intake (i.e., built-up utensils, texture modification, divided plate).
 7. Effect of diet on therapeutic efficacy and adverse nutritional effect of medications.
 8. Basic clinical skills in CLC unit.
 9. Confer with team and physician on referrals to other services.

IV. Rotation Special Project Suggestions

(Choose one of the following or develop your own idea. Discuss with dietitian.)

- A. Small group 20-30 minute class presentation: Diabetes, Lipid, Weight Control, High Fiber, Importance of Adequate Hydration, Low Sodium, Normal Nutrition (recipes, label reading, etc.). Develop nutrition education material as appropriate. Document education in residents' charts appropriately.
- B. Case study: diagnosis of interest (needs nutritional involvement). Present to VA dietitians and dietetic interns.
- C. Educational bulletin board.
- D. Staff in-service based on needs assessment.

V. Evaluation

- A. Participate in ongoing communication/feedback with the dietitian throughout the rotation (at least weekly).
- B. Submit completed assignments to the dietitian prior to rotation and special project prior to last day of rotation.
- C. Schedule rotation evaluation for the last day of the rotation.

**Texas A&M University Dietetic Internship
Rotation Information:
Gerontology, Wound Care, Rehabilitation, and Hospice/Palliative Care**

Required Reading List

Please write a brief synopsis (what you learned/found of interest, words whose definition you had not known, etc.).

*Individualized Nutrition Approaches for Older Adults in Health Care Communities (October 2010) – Position Paper of the AND; access at www.eatright.org

*Ethical and Legal Issues in Nutrition, Hydration and Feeding (June 2013) – Position Paper of the AND; access at www.eatright.org

*Oral Health and Nutrition (May 2013) – Position Paper of AND; access at www.eatright.org

*Health Implications of Dietary Fiber (October 2008) – Position Paper of AND; access at www.eatright.org

*Partnership for Health in Aging Position Statement; access through AND, www.eatright.org (<http://www.eatright.org/About/Content.aspx?id=6442460576>)

*http://www.eatrightjax.org/files/Wound_Care.pdf

*Nutrition and Wound Care. Lynn Grieger, RD, CDE, cPT. Today's Dietitian. Vol. 11, No. 8, p 12 (August 2009); <http://www.todaysdietitian.com/newarchives/072709p12.shtml>

*Introduction to Wound Care, Evidence Analysis Project, click on NPUAP – EPUAP Nutrition Guidelines; access at www.andevidencelibrary.com (<http://andevidencelibrary.com/topic.cfm?cat=4871&highlight=wound%20care&home=1>)

*Unintended Weight Loss in Older Adults, Evidenced-Based Nutrition Practice Guidelines; access at www.andevidencedlibrary.com

*Heart Failure Evidenced-Based Nutrition Practice Guidelines; access at www.andevidencedlibrary.com

*Nutrition Management in the Rehabilitation Setting, access at <http://emedicine.medscape.com/article/318180-overview>

Workbook

Choose two of the following topics. Please do a literature search for a current article, using a peer reviewed journal and write a synopsis.

Nutrition and Wound Healing

Dysphagia

Nutrition Build-up

Anemia

Restorative Dining

Constipation Management

Adaptive Feeding Devices

Commonly used Medications – Describe what the medication is used for and any potential food/drug interactions:

Lasix or Furosemide:

Hydrochlorothiazide:

Potassium Chloride:

Lisinopril:

Omeprazole:

Docusate:

Polyethylene Glycol:

Sorbitol:

Bisacodyl:

Lactulose:

Megestrol or Megace:

Dronabinol:

Statins:

Niacin:

Warfarin:

Novolog Insulin:

Regular Insulin:

Lantus Insulin:

Detemir Insulin:

70/30 Insulin:

Glyburide:

Vicodin:

Revised May 2014

Morphine Sulfate:

Doxycycline:

Levofloxacin:

Moxifloxacin:

Ciprofloxacin

Texas A&M University Dietetic Internship
Rotation Information:
Oncology — VA

Location: Central Texas Veterans Health Care System
Temple Dietitian's office: BRB 4G37 254
743-0542 or 254-778-4811 Ext. 40542

Duration: Introductory Clinical - 80-120 hours

Goal: Increase knowledge and enhance skills in meeting the nutritional care needs of patients with oncologic diagnoses. Improve counseling skills in an outpatient setting. Promote continued development of basic nutrition care skills and provide the opportunity to participate in a team approach to patient care.

I. Rotation Preparation (Complete prior to starting rotation.)

- A. Contact the dietitian prior to the first day of the rotation to make necessary arrangements.
- B. Prepare written list of goals and objectives for rotation to discuss with the dietitian on Day 1

I. Routine Duties

- A. Meal rounds: at least two or three times a week.
- B. Observe intake: good, fair, poor; note on patient care notebook.
- C. Honor food preferences as possible. Do not encourage patients to voice numerous preferences. Do honor food preferences to improve intake or tolerance.
- D. Modify consistency as indicated to improve tolerance and intake. May change consistency toward liquid as indicated without order. Must have doctor's order to change consistency toward more solid as there may be danger of choking or other problems of which one is not aware. Good idea to check with nurse working with patient before consulting doctor concerning change in order.
- E. Discharge planning at least once each week. Be prepared to contribute during the meeting concerning appropriate/present diet for patients, rationale for diet, patient's intake, tolerance, and recommendations.
- F. Screen assigned Oncology patients admitted during rotation. Follow-up assigned patients as needed. Follow-up progress notes as needed, or according to VA documentation standards (Patients severely compromised – weekly, patients moderately compromised – every 2 weeks, patients mildly compromised – every 3 weeks, patients with normal nutrition status – monthly, patients receiving comfort care – weekly).
- G. Oncology Nutrition clinic: outpatient consults as needed

- H. Recommend use of Ward Diet Order List and In patient Roster, obtained through computer, for up-to-date listing of patient's diet orders, between meal feedings, etc. To obtain Ward Diet Order List, use computer menu as follows:
 - i. Clinical Dietetics
 - ii. Dietetic List and Reports (DR)
 - iii. Ward Diet Order List (WD)
- I. Attend pertinent lectures and presentations. Check with dietitian.

II. Rotation Assignments

- A. Complete assignments as assigned.

III. Evaluation

- A. Submit or present written/oral assignments to the dietitian as requested.
- B. Schedule rotation evaluations with the dietitian for the last day of the rotation and give evaluation form to the dietitian to complete by Thursday of the last week of rotation.

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION: Nutrition Support VA**

Nutrition Support VA: Location: CTVHCS – Temple
1901 South 1st Street
Temple, TX 76501
Duration: 80 hours

- Goals:**
1. Increase knowledge and enhance skills in meeting nutritional care needs of patients critically ill and surgical intensive care patients and including those who are receiving parental or enteral feedings. Become familiar with the role of each member of the nutrition support team.

 2. Gain skill in physical assessment of the critically ill patient to determine if a patient has a vitamin deficiency by assessing their skin, determine if a patient has appropriate bowel function to start enteral feeding, determine a patient's frame size using various methods and determine a patient's fluid status from observation.

I. ROTATION PREPARATION

- A. Contact dietitian 1 week prior to rotation to make necessary arrangements.
- B. Read required articles and text chapters. Be able to discuss any of this information on the first day of the rotation.
- C. Complete exercise in ADA continuing education article included in the reading packet. Maileet, J.O. "Calculating Parental Feedings." (Note – used 4 cal/gm protein for calculations).
- D. Review Enteral and Parenteral sections of VAMC diet manual for Nutritional Management.
- E. Complete the worksheet for parenteral formulas and turn it in the first day of rotation (Worksheet is found immediately behind this rotation information. Use your own ht/wt information).

II. ROUTINE DUTIES

- A. Arrive on time (daily). If time off is needed, you must discuss on first day of the rotation.
- B. Check Vista and Outlook email messages daily and throughout the day.
- C. Print ward roster and screening sheets for consults, referrals and patients needing reassessments (daily). Keep roster updated with nutrition status, and follow-up dates.
- D. Check for doctors' consults, screening referrals and follow-ups (daily). Maintain flow sheets on all patients followed by NST. Update daily.
- E. Visit each patient daily and be able to discuss their nutrition intake with preceptor and medical team.
- F. Attend daily rounds for pulmonary/medical, cardiology. Surgery team on Friday mornings.
- G. Present any new patients during weekly to NST.

- H. Give diet instructions as needed.
- I. Observe placement of feeding tube, PICC line, central line and abdominal surgery if possible.
- J. Observe endoscopic or radiologic placement of feeding tube, if possible.
- K. Observe preparation of parenteral nutrition in pharmacy.
- L. Use appropriate abbreviations; do NOT use all caps in typing notes.

III. ROTATION ASSIGNMENTS

- A. Complete Nutrition Support questions/definitions and turn in by end of first week.
- B. In the 2nd week choose an article in JPEN/NCP and present it to the staff during lunch. Have slides and handouts as appropriate.
- C. Case studies and other projects as assigned.
- D. Attend pertinent lectures and presentations.
- E. Sign on to the ASPEN website and get an account by the end of the 2nd day and explore the website and discuss with preceptor.

IV. EVALUATION

- A. Submit completed written assignments to the Dietitian as requested.
- B. Submit completed evaluation forms and written assignments no later than 3 days prior to the last day of the rotation or as requested by the preceptor.
- C. Incomplete or late assignments will result in points being taken off evaluation and may result in failure of the rotation.

READING LIST – To Be Read Prior To Rotation

Maillet, J.O. Calculating Parenteral Feedings: A Programmed Instruction. JADA. 84: 1312, 1984.

The ASPEN Nutrition Support Practice Manual 2nd edition, 2005.

(provided by TAMU Director of the Dietetics Internship: the intern is responsible for reading the following chap: 1 through 4, 6, 20, 21.

Beckwith, M. C, Feddema, SS, Barton, R. C, and Graves, C. A Guide to Drug Therapy in Patients with Enteral Feeding Tubes: Dosage Form Selection and Administrative Methods. Hospital Pharmacy, vol 30, 225-237, 2004.

Barclay, L, Vega, C. Gum Chewing May Speed Recovery From Postoperative Ileus. [http://www. Medscape.com/viewarticle/524084](http://www.Medscape.com/viewarticle/524084), Feb, 2006.

Murtallo, J. et. al, Safe Practices for Parenteral Nutrition; A Special Report, JPEN: 28:6:S39-S70.

Chen, Y., Peterson, S.J. Enteral Nutrition Formulas: Which formula is Right for Your Adult Patient? NCP: 24:3:344-355.

Parrish, C. R. Checking Gastric Residual Volumes: A Practice in Search of Science. Practical Gastroenterology. 67:10:2008, p33-47.

2009 Enteral Nutrition Practice Guidelines, www.nutritioncare.org. JPEN: 33: 2: 122-167.

2009 SCCM and ASPEN Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Adult Critically Ill Patient: JPEN 2009 33, 277.

Clinical Workbook-Nutrition Support Rotation

1. Define the following and their appropriate use:
 - a. Bolus feeding
 - b. Intermittent feeding
 - c. Continuous feeding
 - d. Gravity feeding
2. Distinguish the difference between:
 - a. Osmolite, 1 cal/ml and Promote 1cal/ml and Jevity 1cal/ml
 - b. Nepro vs Suplena vs 2calHN
 - c. Jevity vs Ensure Plus vs Boost Plus
 - d. Vivonex RTF vs Optimental vs Vital AF
 - e. Oxepa vs Impact
3. Be able to verbalize the indications for the use of the above formulas.
4. Know the amount of the different formulas needed to meet the RDI
5. Verbalize the nutritional calculations of enteral and parenteral patient's needs.
6. Calculate the appropriate parenteral substrate mixture.
7. Demonstrate an understanding of the rationale for additives used in parenteral nutrition.
8. Write a parenteral nutrition order; write an enteral feeding order.

CALCULATING NUTRITION NEEDS FOR TPN

1. Determine total kcal needs: BEE x 1.2 to 2 BEE = (men) $66 + 13.7(W) + 5(H) - 6.8(A)$ (women) $655 + 9.6(W) + 1.7(H) - 4.7(A)$	Total kcals:	_____																												
2. Determine protein needs: 0.6 to 2gm/kg IBW = _____gms. Multiply x 4 (# kcal/gm) To estimate IBW: <ul style="list-style-type: none"> • (men) 106# + 6# for each inch over 5' • (women) 100# + 5# for each inch over 5' 	Protein kcals:	_____																												
3. Determine non-protein kcals. Subtract protein kcals from total kcals.	Non-protein kcals:	_____																												
4. Determine lipid needs: 30% to 60% of non-protein kcals = _____ kcals. Lipids come in 500 ml bottles. We give whole bottles. 20% lipids = 2 kcal/ml or 1000 kcal/bottle. Unless trying to restrict kcals use 20% lipids for TPN.	Lipid kcals:	_____																												
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center; border-bottom: 1px solid black;">20% lipids</th> <th colspan="2" style="text-align: center; border-bottom: 1px solid black;">10% lipids</th> </tr> <tr> <th style="text-align: center; border-bottom: 1px solid black;">Days</th> <th style="text-align: center; border-bottom: 1px solid black;">Avg. kcals</th> <th style="text-align: center; border-bottom: 1px solid black;">Days</th> <th style="text-align: center; border-bottom: 1px solid black;">Avg. kcal</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">429</td> <td style="text-align: center;">3</td> <td style="text-align: center;">236</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">571</td> <td style="text-align: center;">4</td> <td style="text-align: center;">314</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">714</td> <td style="text-align: center;">5</td> <td style="text-align: center;">393</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">857</td> <td style="text-align: center;">6</td> <td style="text-align: center;">471</td> </tr> <tr> <td style="text-align: center;">7</td> <td style="text-align: center;">1000</td> <td style="text-align: center;">7</td> <td style="text-align: center;">550</td> </tr> </tbody> </table>	20% lipids		10% lipids		Days	Avg. kcals	Days	Avg. kcal	3	429	3	236	4	571	4	314	5	714	5	393	6	857	6	471	7	1000	7	550		
20% lipids		10% lipids																												
Days	Avg. kcals	Days	Avg. kcal																											
3	429	3	236																											
4	571	4	314																											
5	714	5	393																											
6	857	6	471																											
7	1000	7	550																											
(example: 20% lipids given 5 x /week = 5000 kcal divided by 7 days/week = average of 714 kcal/day)																														
5. Determine dextrose needs:	Dextrose kcals:	_____																												
<ul style="list-style-type: none"> • Subtract lipid kcals from non-protein kcals. • Divide by 3.4 (# kcal/gm) to get gm dextrose 	Gms dextrose:	_____																												

**TEXAS A&M UNIVERSITY DIETETIC INTERNSHIP
ROTATION INFORMATION:
Outpatient Clinic, CTVHCS**

NUTRITION CLINIC: Location: VA Temple

Dietitian's office: Bld 204, 5J19

Phone 1-800-423-2111 Ext. 41999

Duration: 40-80 hours

Goal: Gain skill in assessing nutrition education needs for outpatients and planning and providing education to meet those needs. Enhance listening, interviewing, and communication skills. Develop ability to translate technical nutrition information into patient counseling and group teaching.

I. ROTATION PREPARATION

- A. Contact dietitian prior to start of rotation.
- B. Read articles in rotation packet.
- C. Review nutrition education materials in outpatient clinic.
- D. Prepare personal goals for rotation and submit on day one.
- E. Complete workbook assignment and submit on day one.
- F. Complete other assignments as outlined by precepting dietitian.

II. ROUTINE DUTIES

- A. Work hours are 7:30AM – 4:00PM
- B. Provide patient diet instructions.
- C. Participate and provide group nutrition education.
- D. Complete computer documentation.

III. ASSIGNMENTS

- A. Quiz/Role play – day 1 (or during down times).
- B. Special project (examples include bulletin board, presentation, handout, National Nutrition Month project) as specified by precepting dietitian.

IV. EVALUATION

- A. Ability to effectively interview and counsel patient(s).
- B. Ability to develop appropriate nutrition plan and goals for patient(s).
- C. Ability to document education in patient's computer medical record.
- D. Quality and timeliness of completed assignments.
- E. Schedule and complete evaluation for last day of rotation.
- F. Submit completed evaluation forms to Internship Director.

**Texas A&M University Dietetic Internship
Rotation Information: Outpatient Nutrition Clinic – VA**

Nutrition Clinic (Temple) Reading List

Diabetes management: How lifestyle, daily routine affect blood sugar. Mayo Clinic Staff handout, from website www.mayoclinic.com, June 21, 2007.

Manzella, RN, Debra: Meal plans for diabetes management. From website www.diabetes.about.com, September 6, 2007.

Brookhyser, RD, Joan: Nutrition management of kidney disease. Dietary Manager, March 2007.

Shai, R.D., Ph.D., Iris: Weight Loss with a Low-Carbohydrate, Mediterranean, or Low-Fat Diet. N engl j med 359;3 www.nejm.org July 17, 2008

Obesity: Halting the epidemic by making health easier. National Center for Chronic Disease Prevention and Health Promotion, from website www.cdc.gov, December 2008.

Obesity and overweight: Introduction. Division of Nutrition, Physical Activity and Obesity, National Center for Chronic Disease Prevention and Health Promotion, from website www.cdc.gov, December 2008.

MOVE (Managing Overweight/Obesity for Veterans Everywhere) website: www.move.va.gov

American Heart Association website: www.heart.org

American Diabetes Association website: www.diabetes.org

National Kidney Foundation: www.kidney.org

OUTPATIENT ROTATION WORKBOOK

I. Medical Terminology/Abbreviations:

Define in writing the following terms.

DM Type 1, Type 2	Metabolic Syndrome	Sodium Sensitivity
Diabetes Ketoacidosis	Cholesterol	Hypertension
Hypoglycemia	Triglyceride	Nephropathy/CKD
Hyperglycemia	HDL, LDL	GERD
Morbid Obesity	BMI	Hepatitis C

II. Medications:

The following medications are commonly used to treat patients seen in the clinic. Identify the drugs as well as any food drug interactions. When appropriate give brand/generic names also.

Acarbose	Atorvastatin	Cholestyramine
Coumadin	Genfibrozil	Glipizide
Glyburide	Lasix	Glimepiride
Lovastatin	Metformin	Nicotinic Acid
NPH	Phenytoin	Simvastatin
Aspart/Novolog	Pioglitazone	Rosiglitazone
Glargine/Lantus	Repaglinide	Detemir/Levemir

III. Laboratory Values:

List the normal range for each of the following laboratory values. Briefly explain diet intervention if lab values are out of normal range.

Albumin	Cholesterol
Glucose	Glycohemoglobin (HgA1c)
BUN, Creatinine	HDL
LDL	eGFR
Potassium	Triglyceride

Intern Guidelines for Outpatient Nutrition Clinic

Patients sign up for a time slot on the clipboard at Maroom Team clerk desk. The **sign-up sheet** should be placed daily before 8:30 a.m. Check the clipboard periodically (every 15-30 minutes).

Greet the pt and lead them to clinic. Introduce yourself and ask the pt for name and last 4 of the social security number; use slips of paper in middle drawer to write down information on pt. Use a separate slip of paper for each pt you see; this keeps you organized if you see several pts in a row and have to enter progress notes late in the day.

Ask the patient how you can help him/her today. Look up the most recent physician notes using CPRS in computer. Scan the record for information such as height, weight, labs, and nutritional problems (why the patient needs nutrition counseling).

Discuss with the patient why the physician has recommended nutrition counseling. Obtain a brief diet history (usual eating habits of patient), including intake of beverages and alcohol, use of tobacco, and exercise habits. Determine whether pt lives alone, has help from family members, uses restaurants, etc. Listen to the pt, but keep in mind you have a limit of 30 minutes per pt.

Most frequently, patients are sent to Nutrition Clinic for education on diabetes, cholesterol, hypertension, and weight control.

Handout suggestions:

Diabetes	Lab values explanation Healthy Eating: Controlling Carbohydrate and Fat; Guide to Healthy Eating; Meal Planners (1200, 1500, 1800 calories)
Cholesterol/Lipids	Low Fat/Low Cholesterol /High Fiber
Hypertension	Low Sodium
Weight Control	MOVE! Interest sheet; MOVE packet Meal Planners
Underweight or weight loss	Nutrition Buildup; How to Mix Ensure Powder

With any of the above instructions, use **visuals** you think are appropriate (for example, food models, food labels, dishes, and posters).

Do **food/drug education** (see handouts) if a patient is on:

Diabetic medication (oha or insulin)

Seizure medication (dilantin, phenytoin)

Blood thinner (coumadin or warfarin)

MAO inhibitor

Ensure powder

Supplements are provided by our outpatient pharmacy, if deemed necessary by the dietitian. Patients are provided Nutrition Buildup education and given instructions on how to use **Ensure powder**. The patient can be given 30 days worth of supplement; they must call or return to see the RD for additional supplement. Often you will get phone calls requesting renewals of Ensure powder; patients can renew by telephone but need to come in periodically to be weighed and re-evaluated by RD. Supplements can either be picked up at the pharmacy the same day, or can be mailed to the patient (this takes 7-10 days). See the “Ensure Powder” card on the Nutrition Clinic bulletin board for easy reference on how much to order for the patient.

Liquid Ensure+ should only be given when pt cannot tolerate Ensure powder (for example, patient experiences diarrhea with the powdered form).

Home tube feedings are liquid formulas (not powdered) provided in same manner as Ensure powder. However, the tube feeding formulas can be provided for 30 days with 2 refills (total of 90 days of formula). Tubing and bags can also be ordered by an RD.

Other patient education topics that are less frequent: GERD, gout, potassium restriction, renal diet, fiber, etc. – there are handouts in the clinic for almost every topic. If there is no handout, do a quick search online to find the pt info to take home.

End of the education session:

Establish **goals** with the patient during session and review before they leave. Provide **return information**. Most patient handouts have Nutrition Clinic phone numbers; remind the patient they are welcome to call or return to clinic for further information. Many patients with need for ongoing education (weight control, diabetes, hypertension) should be reminded to return for additional education in 3-6 months. They may return to Nutrition Clinic on a walk-in basis.

We can also schedule patients into **group classes** for diabetes, cholesterol, and weight control. Appointments are necessary for these classes. See group class listing in packet.

Documentation:

Enter Even Capture prior to Progress Note, which creates "clinic" appointment used to tie Progress note. Use CPRS templates for Nutrition Clinic; they help you include all the necessary elements of the note. Before signing the note, you will need supervisors permission to sign, as no changes can be made once you sign.

Any paper with pt name/social security number needs to be in the drawer (filed) or shredded at the end of the day. Lock the computer when stepping away from the desk, and log out of computer when leaving for longer periods.

- H. Provide a list of procedures you would like to try to observe. (PEG placement, Modified Barium Swallow, Wound Care, Cancer Center, Diabetes Class, Bariatric Class, etc.).
- I. Provide verification of liability insurance on first day of rotation.

III. ROUTINE DUTIES: (inpatient)

- A. Arrive at scheduled time with clean pressed lab coat.
- B. Receive directions from Registered Dietitian
- C. Give Diet instructions as needed
- E. Attend multidisciplinary rounds and other meetings.
- F. Look up any unfamiliar medications and their important nutritional side effects and abbreviations.
- G. Enter notes on patients in the electronic medical record and edit as needed after being reviewed by the dietitian.

IV. ROTATION ASSIGNMENTS:

- A. Complete at least one Nutrient Intake Analysis (Calorie Count) during the rotation if possible.
- B. Follow at least one patient receiving a tube feeding &/or total parenteral nutrition.
- C. Complete one journal review as assigned by the dietitian.
- D. Attend pertinent lectures and presentations.
- E. Review education materials available.
- F. Teach Coumadin class.

V. EVALUATION

- A. Submit completed written assignments to the dietitian as requested.
- B. Provide evaluation forms to the dietitians to complete one week prior to the last day of the rotation.
- C. Schedule final rotation evaluations.
- D. Submit completed evaluation forms and written rotation assignments to the Clinical Nutrition Manager by the last day of the rotation.

St. Joseph Regional Health Center Rotation Reading List

Please familiarize yourself with the following:

- **Cardiovascular**
 - **2010 Dietary Guidelines**
(<http://www.cnpp.usda.gov/DGAs2010-PolicyDocument.htm>)
 - **TLC guidelines- Therapeutic Lifestyle Changes Diet**
(<http://www.nhlbi.nih.gov/cgi-bin/chd/step2intro.cgi>)
 - **NIH stroke scale** (http://www.ninds.nih.gov/doctors/NIH_Stroke_Scale.pdf)

- **Critical Care**
 - **ASPEN guidelines**
 - Boullata J, Brantley S, Corkins M, et al. Enteral Nutrition Support Recommendations. JPEN. 2009; 33(2): 122-167.
 - McClave SA, Martindale RG, Vanek VW, et al. Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Adult Critically Ill Patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) . JPEN. 2009; 33(3): 277-316.
 - Mirtallo J, Canada T, Johnson D, et al. Safe Practices for Parenteral Nutrition. JPEN. 2004; 28(6): S39-S70. (see Erratum JPEN. 2006; 30(2): 177)

Cardiovascular Case Study- 65 y/o Caucasian Female

Admitting Diagnosis: Cerebrovascular Accident, Ischemic stroke

Reason for Dietitian Assessment: Nursing triggers for difficulty swallowing, chewing, and stroke consult received.

Subjective

Pt currently tolerating heart healthy/diabetic, mechanical soft diet with nectar thick liquids per speech therapy recommendations. Pt with some nausea since admit, yet no emesis.

Objective

Ht: 5'4"

IBW: 120#

Wt: 178#

BMI: 30.6

Diet order: Heart Healthy, Diabetic Diet- mechanical soft textures with nectar thick liquids

Average PO taken: B: 25, L: 30, D: 45% yesterday

Past Medical History: HTN, TIA '09, DM, CAD

Pertinent Labs:

Please indicate standard ranges of labs below:

Cholesterol: 265

TG: 346

LDL: 191

HDL: 26

HgbA1C: 8.8

Pertinent Meds:

Metformin BID, Lopressor, Zofran PRN

Additional Tests and Physical Findings:

Speech Therapy notes: Pt with mild cognitive deficits, mild expressive language deficits, and mild dysarthria. With swallowing, mild-moderate oropharyngeal dysphasia is suspected. Therefore, safest diet recommended is MECHANICAL SOFT WITH NECTAR THICK LIQUIDS USING ASPIRATION PRECAUTIONS, NO STRAWS. Likely in 1-2 days, pt diet can be upgraded.

NIH Stroke Score: 9

Assessment/Plan (*Please fill in the following*)

Nutrition Prescription for pt:

PES statement for patient:

Patient Specific Intervention planned:

Reason for Dietitian Assessment: Routine Follow Up

Subjective

Pt has been upgraded to regular textures and thin liquids per SLP recs based on improvement in swallowing and cognitive function. Pt tolerating diet without difficulties. MD does note pt condition stable, however, has now developed atrial fibrillation and will continue to be inpatient until INR becomes therapeutic.

Objective

Ht: 5'4"

IBW: 120#

Wt: 178#

BMI: 30.6

Diet order: Heart Healthy, Diabetic Diet

Average PO taken: B: 75, L: 60, D: 90% yesterday

Past Medical History: HTN, TIA '09, DM, CAD

Pertinent Labs:

No new labs

Pertinent Meds:

Metformin BID, Zocor, Lopressor, Zofran PRN, Warfarin

Additional Tests and Physical Findings:

SLP continues to work with patient.

New Afib noted per MD

NIH Stroke score: 2

Assessment/Plan (*Please fill in the following*)

Nutrition Prescription for pt:

PES statement for patient:

Patient Specific Intervention planned:

Wound Care Case Study-43 year old Caucasian male

Admitting Diagnosis: Infected diabetic R foot ulcer

Reason for Dietitian Assessment: Wound care consult received, MD consult for metabolic syndrome and morbid obesity

Subjective:

Pt has been tolerating po intake with no complaints of N/V, pt says his last BM was three days ago. Pt says he does not follow any specific diet at home and eats out for the majority of his meals.

Objective:

Ht: 5' 11"

IBW: _____

Wt: 395#

BMI: _____

Diet Order: 2200 ADA

Average PO Taken: 100% of 3 meals yesterday

Past Medical History: morbid obesity, metabolic syndrome, T2DM, GERD, HTN, neuropathy secondary to DM, CKD secondary to morbid obesity and DM, Hx 3 toe amputations on R foot

Pertinent Labs:

Please indicate standard ranges of labs below:

Cr: 1.43

EGFR: 62

Glucose: 336

HgbA1C: 10.3

Pertinent Medications:

What is their purpose?

Levemir:

Moderate/bedtime SSI:

Colace:

Vancomycin:

Additional Tests and Physical Findings:

Last BM was 3 days ago per pt

Non-healing diabetic ulcer noted to R foot, MD notes may need surgical intervention

3 previous toe amputations noted to R foot

1+ pitting edema noted to RLE

Stage I pressure ulcer noted to coccyx

Assessment and Plan (Please fill in the following)

Nutrition Prescription for Patient:

Kcal _____

Protein _____

Fluids _____

PES Statement:

Nutrition Intervention:

Reason for Dietitian Assessment: Patient is due for a follow-up today

Subjective:

Pt is s/p R BKA due to non-healing diabetic ulcer. Pt reports poor appetite due to pain and nausea, says he is only able to eat about half of his meals. Pt says he has not had a BM in ~8 days.

Objective:

Adjusted IBW for BKA: _____

Diet Order: 2200 ADA

Average PO Taken: 25%, 50%, 25% yesterday

Pertinent Labs:

Cr: 1.08

eGFR: 80

POC last 24 hours: 185-360

Pertinent Medications: What is their purpose?

Zofran PRN: _____

Dulcolax: _____

Levemir, Vancomycin, Aggressive/bedtime SSI

Additional Tests and Physical Findings:

Pt underwent a R BKA yesterday

Last noted BM was 8 days ago

Assessment and Plan (Please fill in the following)

Nutrition Prescription for Patient:

Kcal _____ **Protein** _____ **Fluids** _____

PES Statement:

Nutrition Intervention:

Additional questions:

- 1) What are some risk factors associated with skin breakdown and delayed wound healing? Which of these does this patient have?

- 2) What are some macro/micronutrients that are beneficial in wound healing?

Pancreatitis Case Study – 30 y/o Female

Admitting Diagnosis: Severe Pancreatitis

Reason for Dietitian Assessment: decreased po intake, N/V, diarrhea

Subjective:

Patient is currently NPO. She currently has no complaints of N/V. MD has placed a dohoff tube to initiate Perative tube feeding at 20 ml/hr with a goal rate of 40 ml/hr. (Perative provides 1300 kcal/L, 66.7 gm protein/L, and 790 ml free water/L).

Objective:

Height: 5'7"
Wt= 130#

IBW= 135#
BMI= 20.4

Diet Order: NPO

PMH: alcohol abuse

Pertinent Labs:

- 1) _____
- 2) _____

Pertinent Medications: What is their purpose?

Reglan _____
Insulin _____

Additional Tests and Physical Findings:

Abdominal ultrasound has confirmed biliary duct blockage.

Assessment and Plan:

Estimated Needs:

Kcal: _____ **Protein:** _____ **Fluid:** _____

PES Statement: _____

Nutrition Intervention: _____

Tube Feeding Calculations for MD goal rate:

Kcal: _____ **Protein:** _____ **Free Water:** _____
Kcal/Kg: _____ **Gm/Kg:** _____

Supporting Questions:

1) What are the risk factors for pancreatitis? _____

2) What are the functions of the pancreas?

a) Exocrine _____

b) Endocrine _____

3) What vitamin and mineral supplements would you recommend? _____

4) The patient did not tolerate her tube feeding and the doctor initiated the following TPN at 95 ml/hr

Dextrose 30%(1000 ml)

Amino Acids 8.5% (1000 ml)

20% lipids (250 ml)

a) What would this TPN provide?

Kcal: _____ Protein: _____

Dextrose Load: _____ Lipids (gm/kg): _____

b) Is this TPN appropriate to meet the patient's needs? YES NO

c) If the TG are 404, would lipids be appropriate for the TPN? YES NO

5) A patient is diagnosed with mild to moderate pancreatitis. MD notes that this has resolved, what diet would you recommend advancement to? _____

Oncology Case Study – 57 y/o Male

Admitting Diagnosis: Esophageal Cancer

Reason for Dietitian Assessment: decreased po intake and weight loss

Subjective:

The patient reported that at home he was only able to take in Ensure with ice cream for several days. He complained that he has had difficulty swallowing food and has mostly been able to take in liquids. He stated that he usually weighs ~125#, but has lows about 20# in the month.

Objective:

Height: 5'8"

IBW= 154#

Wt= 105#

BMI= 16.0

Diet Order: Regular diet

PMH: alcohol abuse, esophageal cancer

Pertinent Labs:

No pertinent labs

Pertinent Medications: What is their purpose?

Megace _____

Dulcolax _____

Additional Tests and Physical Findings:

The patient appears to have muscle wasting

Last BM was 5 days PTA.

Radiation and chemotherapy are scheduled to start

Assessment and Plan:

Estimated Needs:

Kcal: _____ **Protein:** _____ **Fluid:** _____

PES Statement: _____

Nutrition Intervention: _____

Supporting Questions:

1) What are the common symptoms with cancer treatment? _____

2) What symptoms is the patient experiencing and what advice would you offer to help alleviate these symptoms? _____

Additional Tests and Physical Findings: Abdominal pain to the LLQ with associated tenderness, active bowel sounds, last BM reported the day before admission

Assessment/Plan (*Please fill in the following*)

Nutrition Prescription for pt:

Estimated Needs:

Kcal range:

Protein range:

Fluids:

*Indicate the method used to determine needs (i.e. kcal/kg or other estimation methods)

PES statement for patient:

Patient Specific Intervention planned:

Goals:

Monitoring Indicators:

Critical Care Case Study #1
57 year old male with ARDS

Admitting Diagnosis: respiratory failure, pneumonia, and ARDS

Reason for RD Assessment: TF ordered, the patient is on a vent

Subjective:

The patient is currently intubated and sedated with propofol. Nepro TF has been ordered and is running at 30 ml/hr. (Nepro provides 1800 kcal/day, 81 gm protein/L, and 727 ml free water/L).

Objective:

Height: 5'7"

IBW: 148#

Weight: 177# (80.7 kg)

BMI= 27.8

What would you need to look at to calculate his estimated needs? _____

Diet Order: NPO/TF

PMH: HTN, hypercholesterolemia

Recent Labs:

Na= 135 (low)

K= 5.4 (high)

Glucose= 167 (high)

BUN= 73 (high)

Cr= 3.17 (high)

GFR= 22 (low)

Ca= 9.2

Pertinent Medications: *What is the significance of this medication?*

Diprivan @ 26.6 ml/hr _____

Current TF provides: (Include any additional kcal from other sources).

Kcal: _____ **Protein:** _____ **Free Water:** _____

Kcal/kg: _____ **Gm/Kg:** _____

Assessment and Plan:

Estimated Needs: Based on the Penn State Equation using 101 F and 13.8 L/min.

Kcal: 2137 **Protein:** _____ **Fluid:** _____

% of Needs Met:

Kcal: _____ **Protein:** _____ **Fluid:** _____

PES Statement: _____

Nutrition Intervention:

Is Nepro the appropriate formula? And why or why not? _____

What would your recommendation be? _____

TF Recommendation:

Formula: _____ Rate: _____ Supplements: _____

Flushes: _____

TF would provide:

Kcal: _____ Protein: _____ Free Water: _____

Kcal/kg: _____ Gm/Kg: _____