ALGORITHMS FOR NUTRITIONAL CARE

HIV/AIDS Medical Nutrition Therapy

The following pages include:

1. Nutrition Referral Criteria for Adults (over 18 years) with HIV/AIDS

2. Nutrition Referral Criteria for Pediatric (under 18) with HIV/AIDS

Nutrition Referral Criteria for Adults and Pediatrics contain conditions to trigger an automatic referral for HIV/AIDS medical nutrition therapy. These criteria appear in *Guidelines for Implementing HIV/AIDS Medical Nutrition Therapy*, approved by the Los Angeles County Commission on HIV Health Services (1999).

3. Karnofsky Performance Status Scale (see page 8-5)

The Karnofsky Performance Status Scale is used by many HIV clinicians, agencies and research studies to assess an individual's functional status. The HIV/AIDS Adults Medical Nutrition Therapy Protocol utilizes the scale as a measurement of functional outcomes.

4. Nutrition Services Screening/Referral

This is a sample screening and referral form. It was developed and implemented by a Ryan White CARE Act Title III grantee clinic utilizing the Nutrition Referral Criteria for Adults (see above).

5. HIV/AIDS Adults Medical Nutrition Therapy Protocol, and

6. HIV/AIDS Children/Adolescents Medical Nutrition Therapy Protocol

Medical nutrition therapy protocols are a plan or a set of steps, developed through a consultative process by experts and practitioners. They incorporate current professional knowledge and available research, and clearly define the level, content, and frequency of nutrition care that is appropriate for a disease or conditions in typical settings.

ALGORITHMS FOR NUTRITIONAL CARE

Medical nutrition therapy (MNT) protocols for HIV/AIDS and other medical nutrition conditions were developed in response to the needs of members of the dietetics profession, medical care payers, managed care organizations and others to define the care provided by registered dietitians and expected outcomes. The Quality Management Committee of the American Dietetic Association designed the protocol format in 1995 after reviewing more than 20 protocols from state affiliate organizations, health maintenance organizations and federal agencies. Published in *Medical Nutrition Therapy Across the Continuum of Care* (ADA, 1998) the MNT protocols are communication tools that focus on quality care and provider accountability.

The 1996 HIV/AIDS Adult MNT Protocol's original co-authors were Laura Vazzo, RD, MEd, and Marcy Fenton, MS, RD, and updated in 1998 with members of the Quality Management Committee of the HIV/AIDS Dietetic Practice Group. The HIV/AIDS Children/Adolescents Medical Nutrition Therapy Protocol authors are members of the Pediatric Nutrition and HIV/AIDS Dietetic Practice Groups. Both sets of protocols appear here with permission from the American Dietetic Association.

Nutrition Referral Criteria for Adults (over 18 years) with HIV/AIDS*

A referral to a registered dietitian is automatic when any one of the following conditions exist:

1.	Newly diagnosed HIV infection or never been seen by a registered dietitian
2.	Not seen by a registered dietitian in six months.
3.	Diagnosed HIV with symptoms, AIDS, or to receive palliative care.
4.	Greater than 5% unintentional weight loss from usual body weight in last 6 months or since last visit. *% weight loss formula: usual body weight – current body weight / usual body weight x 100*
5.	Visible wasting, less than 90% ideal body weight, less than 20 BMI, or decrease in body cell mass (BCM)
6.	Poor oral intake of food or fluid
7.	Persistent diarrhea, constipation, change in stools (color, consistency, frequency, smell).
8.	Persistent nausea or vomiting
9.	Persistent gas, bloating, heart burn
10.	Difficulty chewing, swallowing, mouth sores, thrush, severe dental caries
11.	Changes in perception of taste or smell
12.	Food allergies or intolerance (fat, lactose, wheat, etc.)
13.	Financially unable to meet caloric and nutrient needs
14.	Concomitant hypo- or hyperglycemia, insulin resistance, hyperlipidemias, hypertension, hepatic or renal insufficiency, heart disease, cancer, pregnancy, anemia, or other nutrition related condition
15.	Albumin less than 3.5 mg/dL, prealbumin 19-43 mg/dL
16.	Cholesterol less than 120 mg/dl and greater than 200 mg/dl
17.	Triglycerides greater than 200 mg/dl
18.	Scheduled chemotherapy or radiation therapy
19.	Medication involving food or meal modification
20.	Need for enteral or parenteral nutrition
21.	Client or MD initiated weight management, or obesity: BMI greater than 30
22.	Client initiated vitamin/mineral supplementation, complementary or alternative diet-related therapies
23.	Vegetarianism

* Asarian-Anderson J, Fenton M, Heller L, Vazzo L, et al: in *Guidelines for Implementing HIV/AIDS Medical Nutrition Therapy*, Los Angeles County Commission on HIV Health Services, 1999. Used by permission.

Nutrition Referral Criteria for Pediatrics (under 18 years) with HIV/AIDS*
A referral to a registered dietitian is automatic when any one of the following conditions exist:

1.	Newly diagnosed HIV infection or never been seen by a registered dietitian
2.	Not seen by a registered dietitian in 3 months.
3.	Diagnosed HIV with symptoms, AIDS, or to receive palliative care.
4.	Weight for age <10th percentile (NCHS)
5.	Height for age <10th percentile (NCHS)
6.	Weight for height (less or equal to symbol) 95% of standard, or weight for height < 25th percentile (less or equal to)
7.	Downward crossing of one major weight for age percentile
8.	Visible wasting, less than 95% ideal body weight, BMI less than or equal to 25th percentile for age and gender, or decrease in body cell mass (BCM)
9.	Poor appetite, food or fluid refusals
10.	Prolonged bottle feeding or severe dental caries
11.	Change in stools (color, consistency, frequency, smell)
12.	For children 0-12 months: Low birth weight
13.	For children 0-12 months: No weight gain x 1 month
14.	For children 0-12 months: Diarrhea or vomiting x 2 days
15.	For children 0-12 months: Poor suck
16.	For children 1-3 years: No weight gain x 2 consecutive months
17.	For children 1-3 years: Diarrhea or vomiting x 3 days
18.	For children 4-16 years: No weight gain x 3 consecutive months
19.	For children 4-18 years: Diarrhea or vomiting x 4 days.
20.	Persistent gas, bloating, heart burn
21.	Persistent nausea
22.	Difficulty chewing, swallowing, mouth sores, thrush, poor feeding skills
23.	Food allergies or intolerance (formula, fat, lactose, wheat, etc.)
24.	Financially unable to meet caloric and nutrient needs
25.	Concomitant hypo- or hyperglycemia, insulin resistance, hyperlipidemias, hypertension, hepatic or renal insufficiency, heart disease, cancer, pregnancy, anemia, inborn error of metabolism, or other nutrition related condition.
26.	Need for enteral or parenteral nutrition
27.	Albumin less than 3.5 mg/dL, prealbumin: 9-22 mg/dL (0-6 mo), 11-29 mg/dL (6 mo-6yr), 15-37 mg/dL (6-16 yr)
28.	Cholesterol less than 65 mg/dl or greater than 200 mg/dl
29.	Triglycerides greater than 40 mg/dl and greater than 160 mg/dl
30.	Scheduled chemotherapy or radiation therapy
31.	Medication involving food or meal modifications
32.	Client or MD initiated weight management, vitamin/mineral supplementation, vegetarianism, complementary or alternative diet-related therapies.

* Fenton M, Heller L, Vazzo L, et al.: in *Guidelines for Implementing HIV/AIDS Medical Nutrition Therapy*, Los Angeles County Commission on HIV Health Services, 1999. Used by permission.

Karnofsky Performance Status Scale

Status	Scale
Normal, no complaints	100
Able to carry on normal activities. Minor signs or symptoms of disease.	90
Normal activity with effort.	80
Cares for self. Unable to carry on normal activity or to do active work.	70
Requires occasional assistance, but able to care for most of his/her needs.	60
Requires considerable assistance and frequent medical care.	50
Disabled. Requires special care and assistance.	40
Severely disabled. Hospitalization indicated though death not imminent.	30
Very sick. Hospitalization necessary. Active supportive treatment necessary.	20
Moribund.	10
Dead	0

Karnofsky et al: The use of the nitrogen mustards in the palliative treatment of carcinoma. Cancer, 1:634-656,1984.

NUTRITION SERVICES SCREENING/REFERRAL

Client Name: _____ Gender: _____ Program/File#: _____ or DOB: ___/___/___

Client Contact Telephone #: _____ Language: _____ Medicaid Waiver Client? ☐ Yes ☐ No

Referred By: _____ Ext: _____ Insurance: _____

Nutrition Screening

Height (in.): _____ Current Weight (lb): _____ Changes in weight status? ☐ Yes ☐ No
If *yes*, How much? _____ ☐ Lost ☐ Gained Over what period of time? _____

Has client ever had a bioelectrical impedance analysis (BIA) of body composition? ☐ Yes ☐ No

Dietary Problems
☐ Poor appetite ☐ Missing teeth ☐ Pain in mouth, teeth, or gums ☐ Consumes > two alcoholic beverages/day

Living Environment
☐ Lives on income of < $6,000/yr ☐ Unable to secure and prepare food ☐ Homebound ☐ Doesn't have a stove or refrigerator

Functional Status
Karnofsky score: _____
Usually or always needs assistance with: ☐ Eating ☐ Preparing food ☐ Shopping for food or other necessities

Nutrition Referral Criteria for Adults (18+ Years) with HIV/AIDS[1] *(Check all that apply)*

☐ Newly dx'ed HIV infection or has never been seen by a registered dietitian
☐ Not seen by a registered dietitian in six months
☐ Diagnosed HIV with symptoms, AIDS, or to receive palliative care
☐ > 5% unintentional weight loss from usual body weight in last 6 months or since last visit
(% wt. loss formula: usual body wt – current body wt / usual body wt x 100)
☐ Visible wasting, < 90% ideal body weight, < 20 BMI, or decrease in body cell mass (BCM)
☐ Poor oral intake of food or fluid
☐ Persistent diarrhea, constipation, change in stools (color, consistency, frequency, smell)
☐ Persistent nausea or vomiting
☐ Persistent gas, bloating, heartburn
☐ Difficulty chewing, swallowing, mouth sores, thrush, severe dental caries
☐ Changes in perception of taste or smell
☐ Food allergies / intolerance's (fat, lactose, wheat, etc.)
☐ Financially unable to meet caloric and nutrient needs
☐ Concomitant hypo- or hyperglycemia, insulin resistance, hyperlipidemias, hypertension, hepatic or renal insufficiency, heart disease, cancer, pregnancy, anemia, or other nutrition related condition
☐ Albumin < 3.5 mg/dL, prealbumin 19-43 mg/Dl
☐ Cholesterol <120 mg/dl and > 200mg/dl
☐ Triglycerides > 200 mg/dl
☐ Scheduled chemotherapy or radiation therapy
☐ Medication involving food or meal modification
☐ Need for enteral or parenteral nutrition
☐ Client or MD initiated weight management, or obesity: BMI > 30
☐ Client initiated vitamin/mineral supplementation, complimentary or alternative diet related therapies

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1 Fenton M, Heller L, Vazzo L, et al. Dietitians in AIDS Care, AIDS Project Los Angeles, 1998. Nutrition screening referral criteria included in: *Guidelines and Protocol of Care for Providing Medical Nutrition Therapy to HIV-Infected Persons* Approved by the Los Angeles County Commission on HIV Health Services, September 2000.

Adapted by Long Beach CARE Clinic | Tammy Darke, Rd, CNSD | Long Beach, CA

Referral Guidelines
1-2 items checked – individual at mild risk for malnutrition → Discuss w/ R.D. need for referral.
3-4 items checked – individual at moderate risk for malnutrition → Refer to R.D.
> 4 items checked – individual at high risk for malnutrition → Refer to R.D. for *immediate* appointment

Medical Information

HIV M.D.: _____ Phone #: _____

Address: _____

HIV Dx Date: _____ AIDS Dx? ☐ Yes ☐ No If *yes*, Date: _____

Past Medical History: _____

_____

Current Medical Status: _____

_____

Current Laboratory Values: _____

_____

Additional Information: _____

Required Documentation to be Provided

☐ Documentation of HIV disease or AIDS signed by a State of California licensed physician
☐ Proof of gross income (most recent)
☐ Proof of Los Angeles County residency (most recent)
☐ Intake evaluation
☐ Authorization to Release Information
**Dietitian must have this form and all required documentation before appointment can be made*

***Appointment Date:** _____ ** R.D. will schedule*

HIV/AIDS ADULTS

Medical Nutrition Therapy Protocol

Setting: Ambulatory Care or adapted for other health care settings (Adult 18+ years old)

Number of sessions: *See Level of Care defined (pages 9-10).

No. of interventions	Length of contact	Time between interventions	Cost/charge
Level 1 and 2 1-2 F/U session/yr	60 minutes initial 15-30 minutes F/U session	Based on assessment and/or level of care	
Level 3 2-6 sessions/yr	30-60 minutes initial 15-30 minutes F/U session	Based on assessment and/or level of care	
Level 4 2-6 sessions/yr	30-60 minutes initial 15-30 minutes F/U session	Based on assessment and/or level of care	

Expected Outcomes of Medical Nutrition Therapy

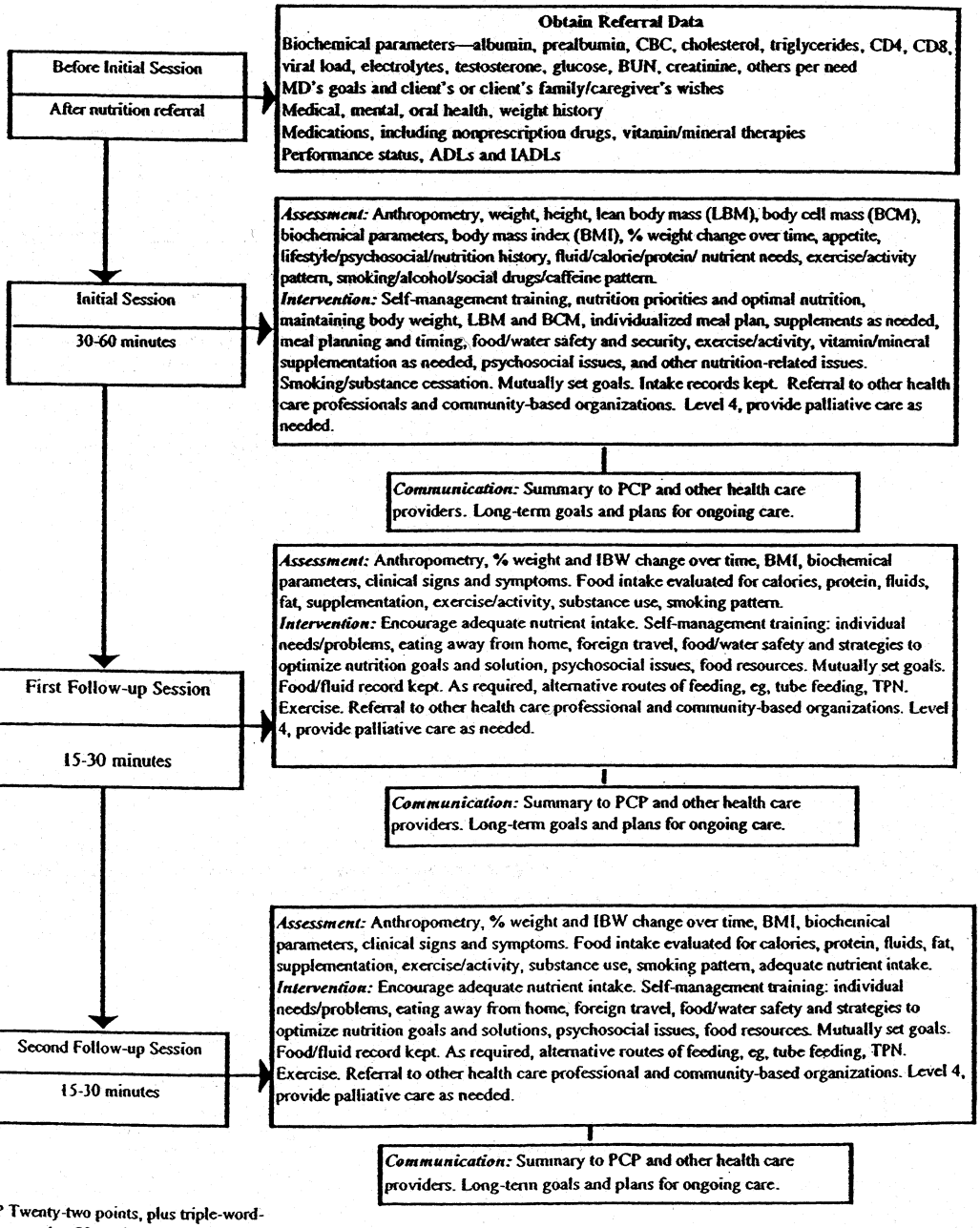
Outcome assessment factors	Intervention: Baseline	Intervention: Evaluation of Intervention		Expected outcome	Ideal/goal value
	1	2	3		
Clinical					
• Biochemical parameters					
Albumin, prealbumin	✓	✓	✓	Levels of care 1, 2 stay within normal levels, levels of care 3, 4 minimize ↓ in biochemical parameters Triglyceride, BUN, creatinine, glucose, electrolytes, CD4, CD8, viral load values: use to evaluate therapy	Albumin 3.5-5.0 g/dL Prealbumin 19-43 mg/dL
CBC	✓	✓	✓		HgB >12 g/dL (F), >14 g/dL (M); Hct >38% (F), >44% (M);
Cholesterol, triglycerides	✓	✓	✓		Cholesterol <200 mg/dL Triglycerides <200 mg/dL
BUN, creatinine, glucose	✓	✓	✓		Glucose <110-115 mg/dL
Electrolytes, testosterone	✓	✓	✓		
CD4, CD8, viral load	✓	✓	✓		Viral load <500 copies HIV RNA/mL
• Anthropometrics Weight, height, BMI, lean body mass, body cell mass	✓	✓	✓	Minimize weight loss, lean body mass (LBM), and body cell mass (BCM) loss	Maintain weight to ≥95% usual; BMI 20-25 Maintain LBM and BCM
• Clinical signs and symptoms	✓	✓	✓	Prevent dehydration, minimize severity of side effects of treatment: eg, diarrhea, nausea/vomiting, dysphagia	Symptom free
• Oral health status	✓	✓	✓	Maintain adequate oral health	Maintain good oral health
Functional					
• Improved performance	✓	✓	✓	Maintain nutritional health to maintain performance per ADLs/IADLs or using Karnofsky performance scale[1]	Intake adequate to maintain performance or ADLs/IADLs
• Improved ADLs or IADLs	✓	✓	✓		
Behavioral*					
• Nutrient intake to maintain or increase weight	✓	✓	✓	• Maintains weight, LBM, BCM, and hydration status	MNT Goals • Calories and protein to maintain weight and LBM
• Employs food/ water safety and sanitation practices	✓	✓	✓	• Prevents food- and water-borne illness	• Fluid intake adequate to maintain hydration status
• Follows therapeutic meal prescription[2]	✓	✓	✓	• Adheres to therapeutic meal prescription	• Remain free of food- and water-borne illness
• Consumes adequate nutrients, foods/supplements, and has knowledge of alternative feeding routes	✓	✓	✓	• Verbalizes need for oral supplements or alternative feeding route	• Meal prescription timing and foods to optimize drug therapy effectiveness
• Includes/avoids foods based on side effects of medication or symptoms of infection	✓	✓	✓	• Minimizes side effects from meds and/or symptoms of infection	• Maintain adequate vitamin/mineral intake
• Communicates use of alternative nutrition therapies to RD as appropriate	✓	✓	✓	• Avoids vitamin/mineral deficiencies or toxicity	• Utilize food security resources when necessary
• Smoking/caffeine/recreational drugs	✓	✓	✓	• ↓ or stops smoking, caffeine use, or recreational drugs	
• Exercise	✓			• Participates in resistance exercise and aerobic exercise 3-5x/wk	
• Food security and barriers to care				• Accesses appropriate community and supportive resources	

*Session in which behavioral topics are covered may vary according to client's readiness, skills, resources, and need for lifestyle change.

[1]Karnofsky DA. Meaningful clinical classification of therapeutic responses to anticancer drugs. *Clinical Pharmacol Ther.* 1961;2:709-712. Editorial.

[2]Therapeutic meal prescription includes the diet order, consistency of food, meal/medication schedule, allergies, food intolerances, and route of feeding.

HIV/AIDS ADULTS
Medical Nutrition Therapy Protocol



P Twenty-two points, plus triple-word-score, plus fifty points for using all my

Medical Nutrition Therapy Across the Continuum of Care

HIV/AIDS Defined Levels of Care[1]

Level of Care 1: HIV Asymptomatic

Clients diagnosed with HIV infection. Disease activity is characterized by persistent generalized lymphadenopathy (PGL). The client is asymptomatic and does not experience complications affecting medical, nutrition, or functional health status. The primary goal of medical nutrition therapy is preservation of lean body mass, prevention of weight loss, and maintenance of nutrition health status.

Level of Care 2: HIV/AIDS Symptomatic but Stable

Clients have symptoms attributed to HIV infection or have a clinical condition that is complicated by HIV. Disease activity is managed and symptoms are controlled. Impact on medical, nutrition, and functional health status is manageable. The primary goal of medical nutrition therapy is maintenance of weight, lean body mass, and managing symptoms and side effects associated with medical treatment.

Level of Care 3: HIV/AIDS Acute

Clients have acute signs and symptoms of AIDS-defining conditions as a result of disease progression. Medical, nutrition and functional health status is being affected. Clients may be hospitalized or frequency of outpatient visits may increase. The primary goal of medical nutrition therapy is maintaining weight, preserving lean body mass, preventing further weight loss, and managing symptoms and side effects of medical treatment.

Level of Care 4: Palliative

Clients have active disease progression, with care emphasis on the last stages of life. Medical, nutrition and functional health status is compromised. Clients care may be provided in the home setting, or in a residential care or long term care facility. In some instances hospitalization may be required. The primary goal of medical nutrition therapy is alleviation of symptoms while providing nutrition treatment that maintains hydration status and supports the client through the dying process.

[1]Levels of Care based upon criteria established by HIV/AIDS Dietetic Practice Group of The American Dietetic Association, 1998.

Guidelines for Medical Nutrition Therapy[1]

Guideline 1: Starting baseline medical nutrition therapy

Within one to six months after an HIV positive diagnosis, the patient should receive as a baseline, a comprehensive nutrition assessment, self-management training, nutrition education, and appropriate recommendations and intervention following the HIV/AIDS Medical Nutrition Therapy Protocol.□ HIV/AIDS medical nutrition therapy includes analysis of dietary history and intake, height, weight, pre-illness usual weight, lean body mass and fat. Skinfold calipers and measuring tape, DEXA, bioelectric impedance analysis (BIA) or other comparable means can assess lean body mass and fat.

Appropriate nutritional lab assessments, such as CBC, lipid panel, blood sugar and liver function tests should be done to identify and provide intervention strategies for clinical manifestations of drug toxicities and underlying abnormalities, such as anemia, vitamin depletion, diabetes mellitus, hypertension and other medical conditions.

Guideline 2: Referring for ongoing medical nutrition therapy

After receiving a baseline nutrition assessment, the patient should receive regular and ongoing HIV/AIDS medical nutrition therapy. This should occur:

- ❖ With asymptomatic HIV infection, at least one to two times per year.
- ❖ With HIV symptoms or an AIDS diagnosis, at least two to six times per year.
- ❖ When there is new nutrition related clinical developments.
- ❖ As needed for ongoing nutrition related clinical complications.
- ❖ If necessitated by the clients ability to understand and incorporate nutrition management skills.

Immunocompetency Panel		
% CD3 (Mature T Cells)	62-87%Absolute CD3 Cells	630-3170 per CMM
% CD4 (Helper Cells)	32-62% Absolute CD4 Cells	400-1770 per CMM
% CD8 (Suppressor T Cells)	17-44% Absolute CD8 Cells	240-1200 per CMM
% CD16 (Natural Killer Cells)	6-22% Absolute CD16 Cells	60-420 per CMM
% CD19 (B Celles)	7-22% Absolute CD19 Cells	120-580 per CMM
Helper/Suppressor Ratio: .9 -3.5		
BioTrace Laboratoreis, 1200 Biscayne Boulevard, Suite 200 North Miami, 33181 Phone: 1-800-895-9905		

[1]Guidelines and Protocol of Care for Providing Medical Nutrition Therpay to HIV-Infected Persons: Standards of Care Committee. LA County Commission on HIV Health Services, 11/4/97.
[2]Fields-Gardner C, Thomas CA, Rhodes SS. A Clinician's Guide to Nutrition in HIV and AIDS. Chicago, IL: American Dietetic Association; 1997.

HIV/AIDS Levels of Care 1-4
Medical Nutrition Therapy Protocol

Session/length: #1 for 60 minutes

Session Process
Refer to Section II MNT Protocols for Implementation Guidelines.

Assessment

A. Obtain permission to release medical /nutrition therapy information, if needed.

B. Obtain clinical and referral data.

1. *Biochemical parameters:* albumin, prealbumin, CBC, BUN, creatinine, fasting glucose, electrolytes, cholesterol, triglycerides; CD4 or CD8, viral load, testosterone level (total and free), other labs as available or needed, e.g., glutamine, zinc, calcium, selenium, vitamins A and B-12, and iron
2. *Clinical symptoms*: fevers/sweats, anorexia, early satiety, abnormal bowel habits, diarrhea, dysphagia, nausea, vomiting, flatulence, digestive problems, shortness of breath, fatigue
3. *Weight history*: usual weight, previous weights, previous measures of lean body mass (LBM), eg, skinfold measures [triceps skinfold (TSF) and mid-arm muscle circumference (MAMC)], or body cell mass (BCM) using bioelectrical impedance (BIA)
4. *Primary feeding route*: oral, tube feeding, parenteral, or combination
5. *Physician's goals for client*
6. *Medical history*: diabetes, cardiovascular disease, renal disease, GI abnormalities, pancreatitis, liver disease, hepatitis, dental and oral health, and mental health, current diagnosis
7. *All medications*: dose, frequency and timing, prescribed and self-prescribed, e.g., reverse transcriptase inhibitors (e.g., retrovir, videx, zerit, epivir), protease inhibitors (e.g., crixivan, norvir, invirase), antifungal (e.g., amphotericin B), antibacterial (e.g., rifampin), and antiprotozoal, vitamin, mineral, or herbal supplements
8. *Lifestyle and psychosocial/economic history*
9. *Functional status*: assess activities of daily living (ADLs), instrumental activities of daily living (IADLs), or performance using Karnofsky performance scale

C. Interview client.

1. *Anthropometric data*: current height/weight; calculate BMI, % ideal and usual weight,
   % weight loss over time. If applicable, measure bioelectrical impedance (BIA) or

obtain skinfold measurements (TSF, MAMC) to estimate LBM or BCM, waist-to-hip ratio, waist circumference, neck circumference

2. *Signs and symptoms*: anorexia, early satiety, diarrhea, nausea/vomiting, maldigestion, flatulence, dysphagia, bowel habits, shortness of breath, fatigue, fever/sweats, pain, and % change over time
3. *Nutrition history*: usual food intake with attention to calories, fat, protein, fluid, use of vitamin/mineral/herb supplement(s), nonprescription drugs, recreational drug use
4. *Alcohol and caffeine intake*, food and water safety and sanitation practices, food allergies, food intolerances
5. *Exercise pattern*: type of activity, frequency, and duration
6. *Psychosocial and economic issues*: living situation, cooking facilities, finances, educational background, literacy level, primary language, employment, ethnic or religious belief considerations (related to nutrition), family support, food security, access to community resources
7. *Barriers to care/learning*: assess disabilities, e.g., sight, hearing impairment, language/speech function, mental functioning
8. *Knowledge/readiness to learn*
9. *Smoking history*: present pattern, cessation or participation in smoking cessation program

Intervention: Levels of Care 1, 2, and 3

A. Provide self-management training to client on identified goals/therapeutic meal prescription.
   1. Rationale for maintaining/increasing body weight and LBM
   2. Importance of adequate nutrient/fluid intake
   3. Any HIV-related symptoms that may occur (or are occurring)
   4. Meal/medication scheduling
   5. Potential food/drug interaction
   6. Strategies to improve intake of nutrient-dense foods
   7. Importance of progressive resistance exercise and aerobic exercise
   8. Strategies to ensure adequate calories, protein, fluids, e.g., 6-9 minimeals a day, food variety
   9. Vitamin/mineral supplementation to avoid deficiency, prevent toxicity
   10. Strategies to decrease or eliminate caffeine or alcohol use
   11. Use of complementary/alternative therapies
   12. Medical nutrition supplement needs, enteral or parenteral nutrition to provide appropriate nutrition
   13. Rationale and benefits of appetite stimulants (if applicable)
   14. Food and water safety and sanitation

15. Psychosocial issues, as appropriate
16. Referral to resources available for smoking cessation and substance/drug abuse
17. Rationale and how to record food/fluid record and its importance in treatment
18. Referral to appropriate community resources available for social support, mental health counseling, economic assistance or other health care providers

Intervention: Level of Care 4 (Palliative)

A. Provide self-management training based on wishes of client, client's family or caregivers.

1. Supportive medical nutrition therapy measures, e.g., oral supplements to optimize oral intake and nutrition health
2. Modified therapeutic meal prescription to meet individual food tolerances and needs
3. Strategies to minimize symptoms associated with conditions/infections
4. Strategies to maintain hydration status
5. Nutrition support, e.g., tube feeding or parenteral nutrition as needed
6. Guidance for use of alternative or complementary therapies

B. Provide self-management training and materials as appropriate to level of care.

1. Review education materials containing information on
   - ❖ Individualized therapeutic meal prescription
   - ❖ Goals of therapy
   - ❖ Changes in biochemical parameters
   - ❖ Symptom management
   - ❖ Changes in medications
   - ❖ Meal and medication schedule
   - ❖ Potential food/drug interactions
   - ❖ Avoidance of vitamin and mineral deficiencies and/or toxicities
   - ❖ Food, fluid, and activity records
   - ❖ Food and water safety and sanitation practices
   - ❖ Strategies to decrease or eliminate alcohol and caffeine use
   - ❖ Evaluation of complementary or alternative therapies
   - ❖ Need for alternative route of feeding
   - ❖ Resistance weight training and aerobic exercise pattern
   - ❖ Community resources for food security and other needs
2. Outcome Measurements
   - ❖ Weight, BMI, LBM (measured by TSF, MAMC) or BCM (measured by BIA), waist-to-hip ratio, neck circumference
   - ❖ Biochemical parameters
   - ❖ Clinical symptoms
   - ❖ MNT goals and behavioral compliance (e.g., estimated nutrient requirements

compared to estimated nutrient intake)
- ❖ Takes measures to ensure safe water and food consumption
- ❖ Verbalizes meal, meal schedule, and potential food/drug interaction
- ❖ Functional status, e.g., ADLs or IADLs or Karnofsky performance scale
- ❖ Uses community resources as needed
- ❖ Wishes of client or client's family or caregiver regarding nutrition support (Level of Care 4)

3. Document on Initial Assessment Form and Nutrition Progress Notes

C. Follow up.

1. Schedule appointment as determined by protocol and level of care
2. Expected Outcomes
   - ❖ Maintains or improves weight status, BMI, preserves LBM and BCM
   - ❖ Maintains or improves biochemical parameters, prevents vitamin/mineral deficiencies
   - ❖ Side effects and symptoms are minimized or eliminated.
   - ❖ Nutrient intake is maintained or improved
   - ❖ Meets goal(s) set with dietitian
   - ❖ No occurrences of food or water-borne illnesses
   - ❖ Adheres to meal and medication schedule
   - ❖ Functional or performance status maintained or improved
   - ❖ Uses community resources
   - ❖ Alternative feeding route implemented as needed
   - ❖ Wishes of client or client's family or caregiver are upheld regarding continuation/cessation of nutrition support (Level of Care 4)

Communication

1. Instruct client to call with questions/concerns
2. Send copy of Initial Assessment and Nutrition Progress Notes to referral source and place original in client's medical record as appropriate
3. Schedule next appointment based on assessment and level of care
4. Call client 24-48 hours prior to next appointment

HIV/AIDS Levels of Care 1-4
Medical Nutrition Therapy Protocol

Session/length: #2 for 15-30 minutes

Session Process

Assessment

Clinical data collected:

- ❖ Medical status and current diagnosis
- ❖ Current weight and % change over time, BMI, LBM, and/or BCM
- ❖ Signs and symptoms: anorexia, early satietydiarrhea, nausea/vomiting, maldigestion, flatulence, dysphagia, bowel habits, shortness of breath, fatigue, fever/sweats, pain, and % change over time
- ❖ Food and fluid record kept by client
- ❖ Biochemical values, as available
- ❖ Medication: prescription, nonprescription, recreational use (dose, frequency, timing)
- ❖ Current exercise and activity pattern
- ❖ Primary feeding route (oral, tube-feeding, parenteral)
- ❖ Alternative or complementary therapies used or being considered

Outcome Measurements (change in client's)

- ❖ Weight, BMI, and LBM, BCM (if applicable)
- ❖ Food and fluid record
- ❖ Adherence to therapeutic meal prescription
- ❖ Biochemical values
- ❖ Medication: prescription, nonprescription, recreational use (dose, frequencytiming)
- ❖ Exercise/activity pattern or evaluation of ADLs, IADLs, performance (Karnofsky scale)
- ❖ Caffeine, alcohol, and smoking pattern
- ❖ Changes in HIV symptoms

Intervention

A. Adjust goals/nutrition prescription.

Note: For Level of Care 4, intervention will be based on client's or client's family's or caregiver's wishes and needs.

1. Review records, evaluate client's adherence and understanding, and provide feedback on
   - ❖ Maintaining or increasing body weight and LBM
   - ❖ Therapeutic meal prescription
   - ❖ HIV/AIDS symptom management
   - ❖ Meal/medication scheduling

- ❖ Potential food/drug interaction
- ❖ Vitamin or mineral supplementation, as needed
- ❖ Exercise or functional status, e.g., ADLs or IADLs performance scale
- ❖ Caffeine and alcohol pattern, recreational drug use
- ❖ Use of complementary or alternative therapies
- ❖ Medical nutrition therapy supplements, enteral or parenteral regimen (if applicable)
- ❖ Need for appetite stimulants (if applicable)
- ❖ Food and water safety and sanitation
- ❖ Psychosocial issues as appropriate

B. Provide self-management training and materials, as appropriate to level of care.

1. Review education materials and concepts containing information on:
   - ❖ Individualized therapeutic meal prescription
   - ❖ Changes in biochemical parameters
   - ❖ Changes in medication
   - ❖ Meal/medication schedule
   - ❖ Potential food/drug interaction
   - ❖ Avoiding vitamin and mineral deficiencies or toxicities
   - ❖ Food, fluid, and activity record
   - ❖ Strategies to optimize nutrient and fluid intake
   - ❖ Food and water safety and sanitation practices
   - ❖ Strategies to decrease or eliminate alcohol and caffeine use
   - ❖ Evaluation of complementary or alternative therapies
   - ❖ Need for alternative route of feeding or medical nutrition supplements
   - ❖ Resistance weight training and aerobic exercise pattern
   - ❖ Community resources for food security and other needs
2. Expected Outcomes:
   - ❖ Meets goal(s) set with Registered Dietitian or other nutrition professional
   - ❖ Takes steps to alleviate HIV-related symptoms
   - ❖ Completes food, fluid, and activity records
   - ❖ Maintains weight and nutritional status by changing dietary intake as needed
   - ❖ Takes measures to ensure safe food and water consumption
   - ❖ Manages weight and preserves LBM and BCM
   - ❖ Replenishes or preserves nutritional parameters
   - ❖ Verbalizes meal/medication schedule or potential food/drug interaction.
   - ❖ Improves or maintains functional status
3. Document on Nutrition Progress Notes

C. Follow up.

Based on level of care, 2 to 6 months (or 2 to 6 times a year)

Communication

1. Instruct client to call with questions/concerns
2. Send copy of Nutrition Progress Notes to referral source and place original in client's medical record
3. Call client 24-48 hours prior to next appointment.

HIV/AIDS Levels of Care 1-4
Medical Nutrition Therapy Protocol

Session/length: #3 for 15-30 minutes

Session Process

Assessment

Clinical data collected.

- ❖ Medical status and current diagnosis
- ❖ Current weight and % change over time, BMI, LBM, and/or BCM, waist-to-hip ratio, neck circumference
- ❖ Signs and symptoms: anorexia, early satiety, diarrhea, nausea/vomiting, maldigestion, flatulence, dysphagia, bowel habits, shortness of breath, fatigue, fever/sweats, pain, and % change over time
- ❖ Food, fluid, and activity records kept by client
- ❖ Biochemical values, as available
- ❖ Medication: prescription, nonprescription, recreational use (dose, frequencytiming)
- ❖ Current exercise and activity pattern
- ❖ Primary feeding route (oral, tube feeding, parenteral)
- ❖ Alternative or complementary therapies used or being considered

Outcome Measurements: change in client's

- ❖ Weight, BMI, and LBM, BCM (if applicable)
- ❖ Food and fluid record
- ❖ Adherence to therapeutic meal prescription
- ❖ Biochemical values
- ❖ Medication: prescription, nonprescription, recreational use (dose, frequency, timing)
- ❖ Exercise/activity pattern or evaluation of ADLs, IADLs
- ❖ Caffeine, alcohol, and smoking pattern
- ❖ Changes in HIV symptoms

Intervention

A. Adjust goals/nutrition prescription.

Note: For Level of Care 4, intervention will be based on client's or client's family's or caregiver's wishes and needs.

1. Review records, evaluate client's adherence and understanding, and provide feedback on:

    - ❖ Maintaining or increasing body weight and LBM

- ❖ Therapeutic meal prescription
- ❖ HIV/AIDS symptom management
- ❖ Meal/medication scheduling
- ❖ Potential food/drug interaction
- ❖ Vitamin or mineral supplementation, as needed
- ❖ Exercise or functional status, e.g., ADLs or IADLs
- ❖ Caffeine and alcohol pattern, recreational drug use
- ❖ Use of complementary or alternative therapies
- ❖ Medical nutrition therapy supplements, enteral or parenteral regimen (if applicable)
- ❖ Need for appetite stimulants (if applicable)
- ❖ Food and water safety and sanitation
- ❖ Psychosocial issues as appropriate

B. Provide self-management training and materials, as appropriate to level of care.

- ❖ Individualized therapeutic meal prescription
- ❖ Changes in biochemical parameters
- ❖ Changes in medication
- ❖ Meal/medication schedule
- ❖ Potential food/drug interaction
- ❖ Avoiding vitamin and mineral deficiencies or toxicities
- ❖ Food, fluid, and activity records
- ❖ Strategies to optimize nutrient and fluid intake
- ❖ Food and water safety and sanitation practices
- ❖ Strategies to decrease or eliminate alcohol and caffeine use
- ❖ Evaluation of complementary or alternative therapies
- ❖ Need for alternative route of feeding or medical nutrition therapy supplements
- ❖ Resistance weight training and aerobic exercise pattern
- ❖ Community resources for food security and other needs

1. Expected Outcomes:
   - ❖ Meets goal(s) set with Registered Dietitian or other nutrition professional
   - ❖ Takes steps to alleviate HIV-related symptoms
   - ❖ Completes food, fluid, and activity record
   - ❖ Maintains weight and nutritional status by changing dietary intake as needed
   - ❖ Takes measures to ensure safe food and water consumption
   - ❖ Manages weight and preserves LBM and BCM
   - ❖ Replenishes or preserves nutritional parameters and nutritional status level
   - ❖ Verbalizes meal/medication schedule or potential food/drug interaction
   - ❖ Improves or maintains functional status
2. Document on Nutrition Progress Notes

C. Follow up.

Based on level of care, 2 to 6 months (or 2 to 6 times a year)

Communication

1. Instruct client to call with questions and concerns
2. Send copy of Nutrition Progress Notes to referral source and place original in client's medical record
3. Call client 24-48 hours prior to next appointment

NUTRITION PROGRESS NOTES
HIV/AIDS Level of Care 1 2 3 4
Other Diagnosis:_____
Progress Toward Goals:
1-Goals reached **3 –No progress**
2-Progress made toward goals

Client's Name:_____
Medical Record #:_____
DOB:_____Gender:_____
Ethnic Background (Optional):_____
Phone Number:_____
Referring Physician:_____

Outcomes of Medical Nutrition Therapy (MNT)

Expected Outcome	Intervention provided to meet goal (Intervention = self-management training plus client verbalizes/demonstrates)			Goal reached (✓indicates goal reached)		
Session	1 (60 min)	2 (30 min)	3 (30 min)	Date:_____ 1	Date:_____ 2	Date:_____ 3
Clinical Outcomes				*Value*	*Value*	*Value*
Albumin (g/dL)						
Prealbumin (mg/dL)						
HgB (g/dL)						
Hct (vol %)						
Cholesterol (mg/dL)						
Triglycerides (mg/dL)						
BUN (mg/dL)						
Creatinine (mg/dL)						
CD4						
Viral load (copies HIV RNA/mL)						
CD8						
Glucose (mg/dL)						
Other labs:						
Height ____ Weight (lb)						
BMI						
Lean body mass (LBM)						
Waist-to-hip ratio/neck circumference						
MNT Goal						
• _____kcal_____g protein ____g fat				_____kcal _____g Pro _____g Fat	_____kcal _____g Pro _____g Fat	_____kcal _____g Pro _____g Fat
• _____cups of fluid/day				_____cups	_____cups	_____cups
• _____meals_____snacks				_____meals _____snacks	_____meals _____snacks	_____meals _____snacks
Functional Outcomes						
ADLs/IADLs (↑ or ↓ or maintains)						
Karnofsky performance scale						
*Behavioral Outcomes**						
• Maintains hydration and nutrient intake						
• Prevents food-/water-borne illnesses						
• Follows therapeutic meal prescription						
• Consumes adequate nutrient intake						
• Understands alternative feeding routes						
• Consumes/avoids/times foods that optimize drug therapy regimen						
• Uses appropriate nutrition therapies						
• ↓ or stops smoking/alcohol				_____ppd	_____ppd	_____ppd
• Participates in resistance and aerobic exercise > 3-5 x/wk				_____x/wk	_____x/wk	_____x/wk
• Verbalizes potential food/drug interaction						
Drugs:_____						
_____				_____dose	_____dose	_____dose
_____				_____dose	_____dose	_____dose
				_____dose	_____dose	_____dose
*Overall Compliance Potential**						
• Comprehension				E G P	E G P	E G P
• Receptivity				E G P	E G P	E G P
• Adherence				E G P	E G P	E G P

Intervention: D Discussed, R Reinforced/Reviewed, ≠ Not reviewed, ✓ Outcome achieved, N/A Not applicable.
***Compliance Potential: E Excellent, G Good, P Poor**

See Back for Comments.

Medical Nutrition Therapy Across the Continuum of Care

ALGORITHMS FOR NUTRITIONAL CARE

Date:__________
Comments:____
____
____
____
____
Client Goals:____
Material Provided:____

Next Visit:____**RD**
Signature/Date

Date:__________
Comments:____
____
____
____
____
Client Goals:____
Material Provided:____

Next Visit:____**RD**
Signature/Date

Date:__________
Comments:____
____
____
____
____
Client Goals:____
Material Provided:____

Next Visit:____**RD**
Signature/Date

Bibliography

Abrams B, Duncan D, Herz-Picciotto I. A prospective study of dietary intake and acquired immune deficiency syndrome in HIV-seropositive homosexual men. J Acquir Immune Defic Syndr. 1993;6:949-958.

Bahl SM, Hickson JF. Nutritional Care for HIV-Positive Persons: A Manual for Individuals and Their Caregivers. Boca Raton, Fla: CRC Press; 1995.

Beal JA, Martin BM. The clinical management of wasting and malnutrition in HIV/AIDS. AIDS Patient Care. 1995:9(2):66-74.

Calloway CW, Whitney C. Surviving with AIDS: A Comprehensive Program of Nutritional Co-therapy. Boston: Little, Brown; 1991.

Coodley GO, Loveless MO, Merrill TM. The HIV wasting syndrome: a review. J Acquir Immune Defic Syndr. 1994;7:681-694.

Field-Gardner C. Position of The American Dietetic Association and The Canadian Dietetic Association: nutrition intervention in the care of persons with human immunodeficiency virus infection. J Am Diet Assoc. 1994;94(9):1042-1045.

Field-Gardner C, Thomson CA, Rhodes S, eds. A Clinicianís Guide to Nutrition in HIV and AIDS. Chicago: The American Dietetic Association; 1997.

Karnofsky DA. Meaningful clinical classification of therapeutic responses to anticancer drugs. Clin Pharm Therap. 1961;2:709-712. Editorial.

Kotler DP. Wasting syndrome: nutritional support in HIV infection. AIDS Res Hum Retroviruses. 1994;10(8):931-934.

Kotler DP, Tierney AR, Wang J, Pierson RN. Magnitude of body cell mass depletion and the timing of death from wasting in AIDS. Am J Clin Nutr. 1989;50:444-447.

Macallan DC, Noble C, Baldwin C, Jebb SA, Prentice AM, Coward WA, Sawyer MB, McManus TJ, Griffin GE. Energy expenditure and wasting in human immunodeficiency virus infection. N Engl J Med. 1995;333:83-88.

Bibliography

Proceedings of the 1992 International Symposium on Nutrition and HIV/AIDS, Including the Nutrition Algorithm and Nutrition Initiative of the Physicians Association for AIDS Care. Chicago: Physicians Association for AIDS Care; 1992.

Romeyn M. Nutrition and HIV: A New Model for Treatment. San Francisco: Josey-Bass; 1995.

Schreiner JE. Nutrition Handbook for AIDS. 2nd ed. Denver: Carrot Top Nutrition Resources; 1990.

Tang AM, Graham NMH, Kirby AJ, McCall LD, Willett WC, Saah AJ. Dietary micronutrient intake and risk of progression to acquired immunodeficiency syndrome (AIDS) in human immunodeficiency virus type 1 (HIV-1)-infected homosexual men. Am J Epidemiol. 1993;138:937-951.

Voelker R. Debating dual AIDS guidelines. JAMA. 1997;278(8):613-614.

Watson RR, ed. Nutrition and AIDS. Boca Raton, Fla: CRC Press; 1994.

Walsek C, Zafonte M, Bowers JM. Nutritional issues and HIV/AIDS: assessment and treatment strategies. J Assoc. Nurses AIDS Care. 1997;8(6):71-80.

Wheeler D, Muurahainen N, Elison R, Launer C, Gilbert C, Bartsch G. Change in body weight as a predictor of death and opportunistic complications (OC) in HIV by history of prior OC. Int Conf AIDS. 1996;11:332. Abstract TuB 2383.

Young JS. HIV and medical nutrition therapy. J Am Diet Assoc. 1997;97(suppl 2):161S-166S.

HIV/AIDS CHILDREN/ADOLESCENTS

Medical Nutrition Therapy Protocol

Setting: Ambulatory Care or adapted for other health care settings (0-18 years old)

Number of sessions: Minimum 5; will vary with category level.

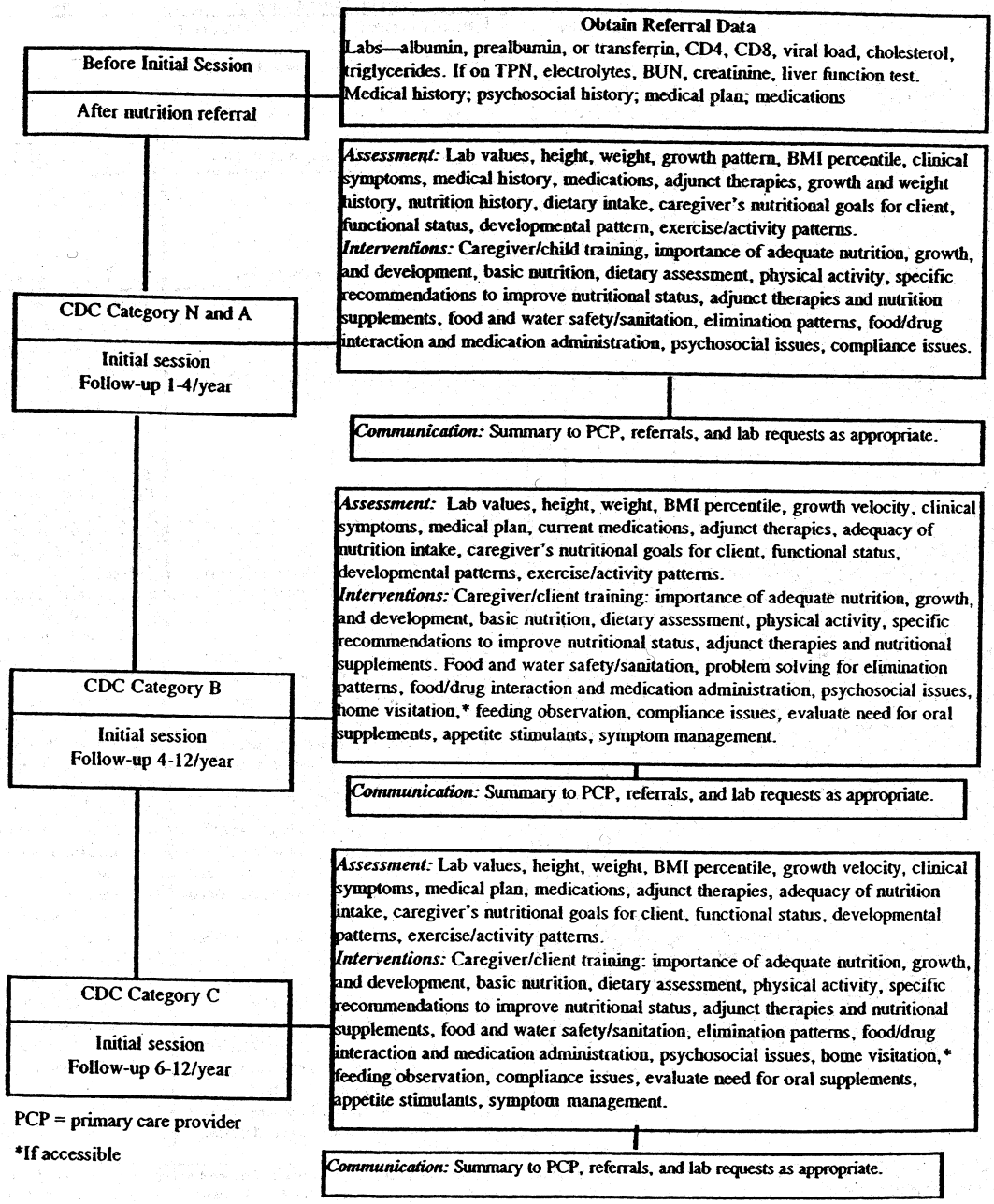
No. of interventions	Length of contact	Time between interventions	Cost/charge
Category N and A 1-4 F/U sessions/yr	60 minutes initial 30-60 minutes F/U session	Based on assessment and/or category of care	
Category B 4-12 sessions/yr	60 minutes initial 30-60 minutes F/U session	Based on assessment and/or category of care	
Category C 6-12 sessions/yr	30-60 minutes initial 30-60 minutes F/U session	Based on assessment and/or category of care	

Expected Outcomes of Medical Nutrition Therapy

Outcome assessment factors	Base-line	Evaluation of Intervention				Expected outcome	Ideal/goal value
	Intervention						
	1	2	3	4	5		
Clinical							
• Biochemical parameters Albumin, prealbumin, transferrin	✓	✓	✓	✓	✓	Stay within normal limits	Albumin: >3.5 g/dL Prealbumin: 9-22 mg/dL (0-6 mo) 11-29 mg/dL (6 mo-6 yr), 15-37 mg/dL (6-16 yr)
CD4, CD8, viral load	✓	✓	✓	✓	✓		Viral load: undetectable CD4: 1.0-1.8[3] (30-40%) 1-6 yr 0.7-1.1 (33-41%) 7-17 yr
HgB, hematocrit	✓	✓	✓	✓	✓		CD8: .8-1.5[3] (25-35%) 1-6 yr .6-.9 (27-35%) 7-17 yr
Cholesterol, triglycerides	✓	✓	✓	✓	✓		HgB, hematocrit, transferrin and triglyceride based on age Cholesterol 65-170 mg/dL
• Anthropometrics Weight, height, BMI %tile (11-17 yr) <3 yr: head circumference, height/length, weight/length Body composition (0-17 yr)	✓	✓	✓	✓	✓	Meet growth velocity goals[1] Maintain/improve lean body mass (LBM) and fat stores based on age and gender[2]	≥50% tile based on NCHS[1] growth grids or preserve growth BMI 50%tile for age, gender Head circumference >5%tile Maintain lean body mass
• Clinical signs and symptoms Diarrhea or malabsorption Nausea/vomiting Dysphagia	✓	✓	✓	✓	✓	Prevent dehydration, minimize severity of infection and side effects of treatment: diarrhea, nausea/vomiting, dysphagia	Stabilize or prevent symptoms of HIV/AIDS
Functional							
• Social development skills	✓	✓	✓	✓	✓	Maintain nutritional health to maintain functional skills for age and developmental level	Intake adequate to maintain functional skills for age and developmental level
Behavioral*							MNT Goals
• Oral intake adequate for expected growth and development	✓	✓	✓	✓	✓	• Growth grids 50-95%tile per NCHS[1] standards, maintains LBM	• Calories and protein to maintain growth velocity and LBM
• Utilizes nutrient-dense foods, supplements, and modular additives as needed	✓	✓	✓	✓	✓	• Verbalizes need for oral supplements or tube feeding or parenteral nutrition when necessary	• Fluid intake adequate to maintain hydration status
• Employs food and water safety and sanitation practices	✓	✓	✓	✓	✓	• Prevents food- and water-borne illness	• Remain free of food and water illness
• Includes/avoids foods based on side effects of medication or symptoms of infection	✓	✓	✓	✓	✓	• Minimizes side effects from meds and/or symptoms of infection	• Meal plan timing and foods to optimize drug therapy effectiveness
• Communicates use of alternative nutrition therapies to RD as appropriate	✓	✓	✓	✓	✓	• Avoids vitamin/mineral deficiencies or toxicity, prevents megadosing with unproven nutritional therapies	• Maintain adequate vitamin/mineral intake
• Physical activity (play)	✓	✓	✓	✓	✓	• Participates in regular physical activity appropriate for age and development	

[1]National Center for Health Statistics Standards. [2]Frisancho AR. New norms of upper limb fat and muscle are for assessment of nutrition status. *Am J Clin Nutr.* 1981:34:2540-2545. [3]Reflect 10[3]. *Session in which behavioral topics are covered may vary according to client's readiness, skills, resources, and need for lifestyle change.

HIV/AIDS CHILDREN/ADOLESCENTS
Medical Nutrition Therapy Protocol



PCP = primary care provider

*If accessible

Medical Nutrition Therapy Across the Continuum of Care

HIV/AIDS CDC Categories N, A, B, C
Medical Nutrition Therapy Protocol

Session/length: #1 for 60 minutes

Session Process
Refer to Section II MNT Protocols for Implementation Guidelines

Assessment

A. Obtain clinical data.

1. *Laboratory values with dates* (within 15 days of session): albumin, prealbumin or transferrin, hemoglobin, hematocrit, CD4, CD8 or viral load, cholesterol, triglycerides; if on TPN, in addition obtain electrolytes, BUN, creatinine, liver function test (e.g., SGOT, SGPT)
2. *Medical goals for client*
3. *Clinical symptoms*: fevers, anorexia, early satiety, abnormal bowel habits, e.g., diarrhea (check tests indicating malabsorption), dysphagia, reflux, nausea, vomiting, flatulence, oral and/or esophageal lesions or dysfunction
4. *Growth and weight history*: usual weight, previous weights and growth pattern per growth grids, previous measures of lean body mass (LBM), e.g., skinfold measures [triceps skinfold (TSF) and midarm circumference (MAC)], or body cell mass (BCM) using bioelectrical impedance (BIA)
5. *Medical history*: renal, liver, neurological, gastrointestinal, pancreatic, or cardiac involvement; dental and oral health; if less than 3 years of age, obtain prenatal and birth history if available
6. *All medications*: dose, frequency, and timing, prescribed and self-prescribed, e.g., reverse transcriptase inhibitors, nonnucleoside inhibitors, protease inhibitors, antifungal, antibacterial, and antiprotozoal agents
7. *Primary feeding route*: oral, tube-feeding, parenteral, or combination
8. *Functional status*: developmental eating, dressing, bathing, toileting skills, and social developmental skills

B. Interview client and/or primary caregiver.

1. *Clinical data*: current height/weight, length for height, weight for length, head circumference (<3 years), calculate BMI and plot on appropriate NCHS growth curves; % ideal and usual weight. If applicable, measure body composition such as skinfold measurements, MAC (midarm circumference), TSF (triceps skinfold thickness), AMA (arm muscle area), bioelectrical impedance (BIA) to estimate LBM or BCM, or dual x-ray absorptiometry
2. Caregiver's nutrition goals for client/attitude about current weight

3. *Nutrition history*: review food intake records if available, usual food intake with attention to calories, fat, protein, fluid, and fiber content, developmental feeding patterns, use of vitamin/mineral/herb supplement(s), over-the-counter drugs, food and water safety and sanitation practices, food allergies, food intolerances
4. *Use of alternative unproven therapies*, e.g., vitamin and mineral megadosing, herbs, bacterial supplements, and amino acids supplements
5. *Exercise pattern*: type of activity, frequency, and duration
6. *Psychosocial and economic issues*: living situation, cooking facilities, meal locations (e.g., school, day care, home), family support, other caregivers, ethnic or religious belief considerations (related to nutrition), parent/caregiver perception of eating habits, health of other family members, financial constraints, participation in food assistance programs
7. *Knowledge/readiness to learn* basic nutrition principles, attitude

Intervention: CDC Categories N and A, Mild Signs and Symptoms

A. Provide self-management training depending on clinical, developmental, and psychosocial circumstances of client/caregiver.
   1. Discuss importance of adequate nutrition to enhance immune function and maintain good nutritional status
   2. Discuss importance of nutrition in supporting growth and development
   3. Plan and schedule meals to enhance drug effectiveness
   4. Determine potential food/drug interaction, medication, and meal timing
   5. Basic nutrition
      - ❖ Nutrient-dense foods
      - ❖ Increasing food variety
      - ❖ Adequate calories and protein for growth
      - ❖ Food preparation
   6. Oral health: caries risk reduction
   7. Negotiate specific dietary changes to improve nutritional status, e.g., increasing frequency of nutrient-dense meals/snacks, promoting feeding skill development, meal planning, goal setting
   8. Determine necessary supplement recommendations including specific vitamin/minerals, high-calorie food additives/modules, modified and calorie-enhanced formulas/beverages
   9. Discuss importance of regular physical activity
   10. Evaluate unproven nutrition treatments including diets, herbal preparations, vitamin megadoses, and rationale for avoiding harmful therapies
   11. Evaluate alternative feeding route, e.g., tube feeding or parenteral nutrition to provide appropriate nutrition

12. Ensure food and water safety and sanitation. Include information on water supply for Cryptosporidium, Giardia, etc, to minimize risk of food-borne infection
13. Provide suggestions to improve reflux, vomiting, and elimination patterns as necessary
14. Develop strategies with family regarding psychosocial issues related to nutritional status, e.g., mealtime behavior, food access
15. Discuss current resources available to the client and family and facilitate in the enrollment in additional necessary services

Intervention (in addition to 1-15): CDC Categories B and C, Moderate Signs and Symptoms

A. Provide self-management training depending on the clinical, developmental, and psych-social circumstances of the client/caregiver.
   1. Perform feeding observation
   2. Provide feedback to caregiver regarding client's growth status and dietary intake
   3. Develop strategies to enhance caregiver's compliance/understanding
   4. Develop strategies to enhance client's compliance
   5. Discuss lab values with caregiver if values warrant attention
   6. Recommend and facilitate acquisition of supplements as needed
   7. Review rationale and benefits of appetite stimulants as appropriate
   8. Discuss symptom management as appropriate:
      - ❖ Oral and esophageal lesions
      - ❖ Diarrhea
      - ❖ Vomiting or reflux
      - ❖ Organ system involvement, e.g., cardiomyopathy, nephropathy, encephalopathy
      - ❖ Opportunistic infections, e.g., avium complex, others affecting GI tract
      - ❖ Failure to thrive and wasting syndrome
      - ❖ Refer to additional resources if necessary

B. Provide self-management training and material based on individual client/caregiver needs.
   1. Goals of nutrition therapy
   2. Review education materials containing information on:
      - ❖ Food Pyramid or other healthy eating guidelines
      - ❖ High-calorie, high-protein foods including cooking methods and recipe modification
      - ❖ Food and water safety
      - ❖ Alternative feeding routes (e.g., tube feeding or parenteral support)
      - ❖ Food, fluid, fiber intake record and activity record
      - ❖ Potential food/drug interaction
      - ❖ Developmentally appropriate food textures and choking prevention
      - ❖ Techniques for mealtime management
      - ❖ Avoiding vitamin/mineral deficiencies/toxicity

- ❖ Community resources for food security and other needs

3. Outcome Measurements:
   - ❖ Weight, growth velocity, head circumference (<3 years), BMI %tile
   - ❖ LBM (measured by TSF, MAC, AMA) or BCM (measured by BIA)
   - ❖ Albumin and/or prealbumin, other labs as necessary
   - ❖ Clinical symptoms, e.g., frequency of diarrhea
   - ❖ Nutritional status level
   - ❖ MNT goals and behavioral compliance
   - ❖ Takes measures to ensure safe water and food consumption.
   - ❖ Verbalizes potential food/drug interaction
   - ❖ Functional status and developmental level
   - ❖ Access to community resources
   - ❖ Need for alternative feeding route
4. Document on Initial Assessment Form and Nutrition Progress Notes

C. Follow up.

1. Schedule appointment as determined by protocol and category of care
2. Expected Outcomes:
   - ❖ Maintains or improves age- and gender-appropriate weight status, growth velocity, BMI or other growth parameters
   - ❖ Preserves LBM and BCM, growth velocity
   - ❖ Maintains visceral protein status, prevents vitamin/mineral deficiencies
   - ❖ Side effects and symptoms minimized or eliminated
   - ❖ Nutritional status level maintained or improved
   - ❖ Meets goal(s) set with dietitian, e.g., increasing nutrient density of diet, developing safe-cooking skills, supplementing with vitamins/minerals, developing feeding skills
   - ❖ No occurrence of food- or water-borne illnesses
   - ❖ No evidence of food/drug interaction or food impacting medication absorption
   - ❖ Engages in safe, fun physical activity
   - ❖ Functional and self-development skills maintained or improved
   - ❖ Progresses towards enrollment with available resources
   - ❖ Alternative feeding route (e.g., tube feeding) implemented if needed

Communication

1. Instruct client and/or caregiver to call with questions/concerns
2. Send copy of Initial Assessment and Nutrition Progress Notes to referral source and place original in client's medical record
3. Schedule next appointment based on assessment and category of care
4. Call client 24-48 hours prior to next appointment or per clinic protocol

HIV/AIDS CDC Categories N, A, B, C
Medical Nutrition Therapy Protocol

Session/length: #2-5 for 30-60 minutes

Session Process

Assessment

Clinical data collected:

- ❖ Current weight, height, length for height, weight for length, head circumference (<3 years), % weight change over time, BMI percentile
- ❖ LBM or BCM, if applicable
- ❖ Food record kept by client and/or caregiver
- ❖ Laboratory values as available
- ❖ Clinical symptoms: fevers, early satiety, bowel habits (check for malabsorption if applicable), appetite status, dysphagia, reflux, nausea, vomiting, flatulence, mental status changes, oral and/or esophageal lesions or dysfunction
- ❖ Current medication (dose, frequency, timing)
- ❖ Current exercise or activity pattern
- ❖ Medical status
- ❖ Primary feeding route (oral, tube feeding, parenteral)
- ❖ Unproven therapies used or being considered

Outcome Measurements: change in client's

- ❖ Weight, height, or length, head circumference (<3 years), BMI percentile, growth velocity
- ❖ Skinfold measures (e.g., TSF, MAC), LBM, BCM (if applicable)
- ❖ Food record (e.g., calories, protein, fluid, fiber)
- ❖ Tolerance of feeding regimen
- ❖ Laboratory values
- ❖ Medication (dose, frequency, timing)
- ❖ Exercise/activity pattern or ADLs (e.g., bathing, toileting)
- ❖ Feeding skills and social development
- ❖ HIV symptoms

Intervention

A. Adjust goals/nutrition prescription.

1. Review records, evaluate client's and/or caregiver's adherence and understanding, and provide feedback on:
   - ❖ Food/meal plan: calories, protein, fiber, fat, fluid, micronutrients

- ❖ Client's growth status and dietary intake
- ❖ Feeding observation (CDC Categories B and C)
- ❖ Timing and content of meals associated with drug therapy
- ❖ Exercise/ADLs and developmental status
- ❖ Age-appropriate feeding skills
- ❖ Symptom management
- ❖ Tube feeding or parenteral regimen (if applicable)

B. Provide self-management training and material as appropriate to category of care.

1. Review education materials containing information on:
   - ❖ Change in Client's status: weight, BMI percentile, growth velocity, and laboratory values
   - ❖ Importance of adequate nutrition to maintain good nutritional status
   - ❖ Strategies to ensure adequate eating habits, e.g., 6-9 minimeals/day, food variety, concentrated protein sources, concentrated calorie sources, adequate fluid consumption, promotion of feeding skill development, meal planning, goal setting
   - ❖ Developmentally appropriate food textures and choking prevention
   - ❖ Techniques for mealtime management
   - ❖ Rationale and benefits of appetite stimulants (if applicable)
   - ❖ Potential food/drug interaction
   - ❖ Eating pattern to reduce side effects from infection and medications
   - ❖ Symptom management, e.g., improve reflux, vomiting, and problems with elimination patterns
   - ❖ Nutritional supplements as appropriate to prevent vitamin/mineral deficiencies, e.g., modular formulas
   - ❖ Vitamin/mineral supplementation to avoid deficiencies/toxicity
   - ❖ Alternative feeding routes, e.g., tube-feeding or TPN, as indicated
   - ❖ Evaluation of unproven nutrition treatment, including diets, herbal preparations, vitamin megadoses
   - ❖ Food preparation
   - ❖ Food and water safety and sanitation: home, away from home
   - ❖ Importance of routine physical activity
   - ❖ Rationale and how to maintain food record and its importance in treatment
   - ❖ Psychosocial issues, quality-of-life issues
   - ❖ Food security and resources
   - ❖ Referral to appropriate community resources or other health care provider
2. Expected Outcomes:
   - ❖ Client meets goal(s) set with Registered Dietitian or other nutrition professional
   - ❖ Client completes food records

- ❖ Client maintains weight, growth velocityand nutritional status by changing dietary intake as needed
- ❖ Client meets expected growth velocity and developmental level for age and gender
- ❖ Client and/or caregiver takes steps to alleviate HIV-related symptoms
- ❖ Client and/or caregiver takes measures to ensure safe food/water consumption
- ❖ Client manages weight and preserves LBM and BCM
- ❖ Client replenishes or preserves nutritional parameters and nutrition status level
- ❖ Client and/or caregiver verbalizes potential food/drug interaction
- ❖ Client improves functional status and overall quality of life
- ❖ Client prevents or reverses HIV wasting syndrome
- ❖ Client's social development is appropriate for age and gender
- ❖ Client improves quality of life

4. Document on Nutrition Progress Notes

C. Follow up.
Based on CDC Category N, A, B, or C; every 1 to 3 months (or 4 to 12 times a year)

Communication

1. Instruct client and/or caregiver to call with questions/concerns
2. Send copy of Nutrition Progress Notes to referral source and place original in client's medical record
3. Call client 24-48 hours prior to next appointment or per clinic protocol

Adapted from: "Nutrition and HIV: A New Model for Treatment," Mary Romeyn, M.D., Jossey-Bass Publishers, San Francisco 1995.

NUTRITION PROGRESS NOTES
HIV/AIDS Children/Adolescents
Other Diagnosis:_____
Category CDC: N A B C

Client's Name:_____
Medical Record #:____Phone Number:_____
DOB:_____ Gender:_____
Ethnic Background (optional):_____
Referring Physician:_____
Registered Dietitian:_____

Outcomes of Medical Nutrition Therapy (MNT)

Expected outcome	Intervention provided to meet goal (Intervention = self-management training plus caregiver verbalizes/demonstrates)			Goal reached (✓ indicates goal reached)		
Date / Session	Initial 60 min	F/U 30- 60 min	F/U 30 min	Date:____ 1	Date:____ 2	Date:____ 3
Clinical Outcomes				*Value*	*Value*	*Value*
• Albumin g/dL						
• Prealbumin or transferrin mg/dL						
• HgB g/dL						
• Hct%						
• CD4____ / CD8____						
• Viral load____						
• Cholesterol mg/dL						
• Triglycerides mg/dL						
• BUN mg/dl						
• Creatinine mg/dl						
• Other labs:_____						
Anthropometrics						
• Height inches or cm						
• Weight (lb or kg)						
• Height/length %tile (<3 yr)						
• Weight/length %tile (<3 yr)						
• Head circumference (cm) (<3 yr)				/____	/____	/____
• Lean body mass (LBM) %						
• Body mass index (BMI) %tile						
• TSF (mm) %tile						
• MAC (mm) / MAMC (mm) %tile						
Clinical Signs and Symptoms						
↓ or no diarrhea						
↓ or no nausea/vomiting						
Functional Outcomes						
• Developmentally appropriate feeding skills						
• Developmentally appropriate activities of daily living (ADLs, eg, eating, dressing, bathing, toileting)						
• Social development skills appropriate for age/gender						
MNT Goal				_____kcal	_____kcal	_____kcal
• Maintain adequate intake of calories and protein				_____g Pro	_____g Pro	_____g Pro
• _____kilocalories _____ g Pro				_____meals	_____meals	_____meals
• _____meals _____ snacks				_____snacks	_____snacks	_____snacks
Behavioral Outcomes						
• Consumes adequate oral intake for growth and development						
• Uses nutrient-dense foods, supplements, and modular ingredients appropriately						
• Employs food/water safety and sanitation practices						
• Includes/avoids foods to lessen side effects of medications or symptoms of infection Drug(s):_____						
• Supplements with appropriate doses of vitamins/minerals						
• Participates in regular physical activity.						
• Uses safe and appropriate nutrition therapies						
*Overall Compliance Potential**						
• Comprehension	E G P	E G P	E G P			
• Receptivity (Readiness)	E G P	E G P	E G P			
• Adherence	E G P	E G P	E G P			

Intervention: D Discussed, R Reinforced/Reviewed, ≠ Not reviewed, ✓ Outcome achieved, N/A Not applicable.
***Compliance Potential: E Excellent, G Good, P Poor.**

See Back for Comments.

ALGORITHMS FOR NUTRITIONAL CARE

Date:__________
Comments:____

Client Goals:____
Material Provided:____

Next Visit:____ **RD**
Signature/Date

Date:__________
Comments:____

Client Goals:____
Material Provided:____

Next Visit:____ **RD**
Signature/Date

Date:__________
Comments:____

Client Goals:____
Material Provided:____

Next Visit:____ **RD**
Signature/Date

Date:__________
Comments:____

Client Goals:____
Material Provided:____

Next Visit:____ **RD**
Signature/Date

Bibliography

Arpadi SM, Wang J, Cuff PA, Thornto J, Horlick M, Kotler P, Pierson RN. Application of bioimpedance analysis for estimating body composition in prepubertal children infected with human immunodeficiency virus type 1. J Pediatr. 1996;129(5):755-757.

Bahl SM, Hickson JF. Nutritional Care for HIV-Positive Persons: A Manual for Individuals and Their Caregivers. Boca Raton, Fla: CRC Press; 1995.

Baum MK, Atienza ME, Shor-Posner G, Fletcher M, Morgan R, Eisdorfer C, Sauberlich HE, Cornwall PE, Beach RS. Association of vitamin B6 status with parameters of immune function in early HIV-1 infection. J Acquir Immune Defic Syndr. 1994;4:1122-1132.

Baum MK, Cassetti L, Bonvehi P, Shor-Posner G, Lu Y, Sauberlich H, Inadequate dietary intake and altered nutrition status in early HIV-1 infection. Nutrition. 1994;10(1):16-20.

Beach RS, Atienza ME, Shor-Posner G, Baum MK. Specific nutrient abnormalities in asymptotic HIV-1 infection. AIDS. 1994;6:701-708.

Beach RS, Mantero-Atienza E, Van Riel F, Fordyce-Baum M. Potential implications of nutritional deficiencies in early HIV-1 infected patients. Arch AIDS Res. 1989;3:225.

Beisel WR. Single nutrients and immunity. Am J Clin Nutr. 1982;35(suppl):417S-468S.

Bell SJ, Forse RA. Positive Nutrition for HIV Infection and AIDS. Minneapolis: Chronimed Publishing; 1996.

Bentler M, Stanish M. Nutrition support of the pediatric patient with AIDS. J Am Diet Assoc. 1987;87(4):488-491.

Brigbord K, Willoughby A. Vitamin A and mother-to-child HIV-1 transmission. Lancet. 1994;343(8913):1585-1586.

Cappell MS, Godil A. A multicenter case-controlled study of percutaneous endoscopic gastrostomy in HIV-seropositive patients. Am J Gastroenterol. 1993;88(2):2059-2066.

Cerami A, Ikeda Y, Latrang N, Hotez PG, Beutler B. Weight loss associated with endotoxin-induced mediator from peritoneal macrophages: the role of cachectin (tumor necrosis factor). Immunol Lett. 1985;11:173-177.

Bibliography

Chandra RK. Nutrition and immunity: lessons from the past, new insights into the future. Am J Clin Nutr. 1991;53:1087-1101.

Chlebowski RT, Grovesnor MB, Berhard NH, Morales LS, Bulcavage LM. Nutritional status, gastrointestinal dysfunction, and survival in patients with AIDS. Am J Gastroenterol. 1989;84:1288-1293.

Cramp ME, Hing MC, Marriot DJ, Fruend J, Cooper DA. Bile acid malabsorption in HIV infected patients with chronic diarrhea. Aust N Z J Med. 1996;26(3):368-371.

Cunningham-Rundles S, Kim SH, Dnistrian A, Noroski L, Mendez-Botet C, Grassey CB, Hinds G, Cervia JS. Micronutrient and cytokine interaction in congenital pediatric HIV infection. J Nutr. 1996;126:2674S-2679S.

Fields-Gardner C. Food-based nutrients as therapeutic options in HIV care. BETA Magazine. 1994:44-46.

Giacomet V, Ruga E, Rampon O, Cozzani S, Ciccone O, Orzali A. Central venous catheter in HIV-infected children receiving total parenteral nutrition for severe failure to thrive. Int Conf AIDS. 1996:11(2):293.

Gleason-Morgan D, Church JA, Bagnall-Reeb H, Atkinson J. Complications of central venous catheters in pediatric patients with acquired immunodeficiency syndrome. J Nutr. 1992;122:723-727.

Ikeogu MO, Wolf B, Mathe S. Pulmonary manifestations in HIVseropositivity and malnutrition in Zimbabwe. Arch Dis Child. 1997;76(2):124-128.

Italien Paediatric Intestinal/HIV Study Group. Intestinal malabsorption of HIV-infected children: relationship to diarrhea, failure to thrive, enteric microorganisms and immune impairment. AIDS J Pediatr. 1991;118:359-363.

Kawakami M, Cerami A. Studies of endotoxin-induced decrease in lipoprotein lipase activity.
J Exper Med. 1981;154:631-639.

Kotler D. Nutritional effects and support in the patient with acquired immunodeficiency syndrome. J Nutr. 1992;122;723-727.

Bibliography

Kotler DP, Giang TT, Thiim M, Nataro JP, Sordillo EM, Orenstien JM. Chronic bacterial enteropathy in patients with AIDS. J Infect Dis. 1995;171:552-558.

Kotler DP, Tierney AR, Francisco A, Wang J, Pierson RN. The magnitude of body cell mass depletion determines the timing of death from wasting in AIDS. Am J Clin Nutr. 1989;50:444-447.

Kotler DP, Wang J, Pierson RN. Body composition studies in patients with the acquired immunodeficiency syndrome. Am J Clin Nutr. 1985;42:1255-1265.

Leung J. An approach to feeding HIV-infected infants and toddlers. Top Clin Nutr. 1989;4(4):27-37.

McKinney RE, Robertson WR. Duke Pediatric AIDS Clinical Trials Unit. Effect of human immunodeficiency virus on the growth of young children. J Pediatr. 1993;123:579-582.

Miller T. Malnutrition: metabolic changes in children, comparisons with adults. J Nutr. 1996;126:2623S-2631S.

Miller TL. Nutrition assessment and its clinical application in children infected with the human immunodeficiency virus. J Pediatr. 1996;129(5):633-636.

Miller TL, Evans S, Orav EJ, Morris V, McIntosh K, Winter HS. Growth and body composition in children with human immunodeficiency virus-1 infection. Am J Clin Nutr. 1993;57:588-592.

Miller TL, Orav EJ, Martin SR, Cooper ER, McIntosh K, Winter HS. Malnutrition and carbohydrate-malabsorption in children with vertically transmitted human immunodeficiency virus I infection. Gastroenterology. 1991;100:1296-1302.

Mugrditchian L, Arent-Fine J, Dwyer J. The nutrition of the HIV-infected child. Part I: A review of clinical issues and therapeutic strategies. Top Clin Nutr. 1992;7(2):1-10.

Oleske JM, Rothpletz-Puglia PM, Winter H. Historical perspectives on the evolution in understanding the importance of nutritional care in pediatric HIV. J Nutr. 1996;126:2616S-2619S.

Bibliography

Schanbelan M, Mulligan K, Grunfeld C, Daar ES, LaMarca A, Kotler DP, Wang J, Bozzette SA, Breitmeyer JB. Recombinant growth hormone in patients with HIV-associated wasting. Ann Intern Med. 1996;125(11):873-882.

Semba RD, Caiffa VT, Graham N, Cohn S, Vlahov D. Vitamin A deficiency and wasting as predictors of mortality in human immunodeficiency virus-infected injection drug users. J Infec Dis. 1995;171:1196-1202.

Slusarczyk R. The influence of human immunodeficiency virus on resting energy expenditure. J Aquir Immune Defic Syndr. 1994;7:1025-1027.

Steuerwald M, Bucher HC, Muller-Brand J, Gotze M, Roser HW, Gyr K. HIV enteropathy and bile acid malabsorption: response to cholyestyramine. Am J Gastroenterol. 1995;90(11):2051-2053.

Tang AM, Chandra RJ, Saah AJ. Low serum vitamin B-12 concentrations are associated with faster immunodeficiency virus type-1 disease progression. J Nutr. 1997;127:345-353.

Winter HS, Chang TL. Nutrition in children with HIV infection. Pediatric HIV Forum. 1993;1(2):1-5.

Yolken RH, Hart W, Oung I, Shiff C, Greenson J, Perman JA. Gastrointestinal dysfunction and disaccharide intolerance in children infected with human immunodeficiency virus. J Pediatr. 1991;118:359-363.