Interprofessional Education: Using an Interdisciplinary Team to Teach Graduate Students to Manage Low Income Clients with Metabolic Syndrome

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Background

- The IOM/AACN recently recommended increasing the emphasis on interprofessional education

- Graduate students in health have limited opportunities to participate in interprofessional teams

- Since 2008, students in nursing and nutrition have functioned as collaborative team members with medicine to deliver nonpharmacologic therapy to low income clients with Metabolic Syndrome (MS)

Metabolic Syndrome

- *Abdominal obesity* measured by increased waist circumference

- *Atherogenic dyslipidemia* manifests in routine lipoprotein analysis by raised triglycerides and low concentrations of HDL cholesterol

- *Elevated blood pressure* strongly associates with obesity and commonly occurs in insulin-resistant persons

- *Insulin resistance* is present in the majority of people with the metabolic syndrome

Methods

- The *team* included UF physicians, UNF faculty, and students in nursing and nutrition

Methods

■ The *clinic* is housed within a family medicine center, is open 9am-3pm on Fridays and is staffed by an RD student coordinator, FNP students and undergraduate students

Methods

- The clinic's electronic medical records were used to identify clients with risk factors for MS

- Clients meeting criteria were called to determine if they were interested in participating in the MS clinic

Methods- Intervention and Control

- Intervention: Six sessions of personalized care related to nutrition and physical activity delivered by nursing and nutrition graduate students
- The six sessions included:
  - four 1 hour individualized nutrition sessions
  - two 1 hour individualized fitness sessions
- Control group: usual care

Methods- RD Students

- RD sessions - completed a nutrition assessment, 24 hour dietary recall and BMI/waist circumference, and administered the online self-efficacy instrument

- Expected outcomes - increased nutrition knowledge, literacy and self-efficacy, improved food shopping and label reading skills, portion control, and improved food choices based on 24-hour food recall data

Methods – NP Students

- NP sessions - obtain and record history and physical exam, vital signs/labs, and complete exercise prescription

- Expected outcomes - increased physical activity, improved labs related to metabolic syndrome, increased nutrition and physical activity self efficacy related to diet and exercise

- Reduced risk factors

Results

- To date, the team has screened over 1000 clients and referred 150 clients to the clinic for evaluation

Results

- *Clinical outcomes* indicated that pre/post differences (BMI, waist circumference, triglycerides, HDL, cholesterol, BP, fasting glucose) improved with a few of the clients achieving goals (weight loss, improved nutrition, and normalized lab values)

Results

- Although the service was complimentary, there was a 70% combined drop out/ no show rate primarily related to transportation, health literacy or work issues
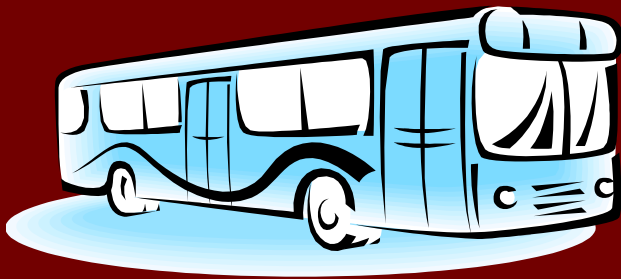
Student Outcomes

Outcomes for interprofessional education include improved skills in:

- performing histories/physicals

- interpreting lab values

- determining fitness parameters

- using outpatient electronic medical records to identify clients with MS (usually not listed as a diagnosis)

Student Outcomes

- Exit interviews indicated that students report satisfaction with the experience and an increased awareness of each profession's role.

- Nutrition students reported greater understanding of medications (name, uses, and interactions).

- NP students reported greater knowledge related to nutrition and improved skill in writing exercise prescriptions.

- Both expressed greater comfort working with interprofessional team members

Exercise Prescription

- Aerobic exercise (walking prescription)
- Increase movement (hourly activity)
- Tai Chi (Allen, J. & Meires, J., 2011, JTCN)

R$_X$

Name   James Doe _____ Date May 1, 2009

Address 111 Peace Steps Way _____

     Tai chi 2-3 times per week for 12 weeks

Label

Refill **3** _____ times   Jennifer Practitioner ARNP
                       (signature)

Clinic Outcomes

- The clinic's medical staff continue to refer clients to the RD and NP students for nutrition and fitness counseling as well as a variety of other diseases and conditions including:

  - renal disease, depression, osteoarthritis, stress, osteopenia/osteoporosis and education related to diagnoses and treatments

Issues of Literacy & the Interprofessional Team

Team Members working together to determine and address:

- Literacy/Health Literacy
- Nutrition choices
- Outcomes
- Evidence

Literacy versus Health Literacy

Literacy
   read
   write
   speak
   compute and solve problems

Health Literacy
   mathematical concepts
   numeracy skills
   knowledge of health topics
   knowledge of the body
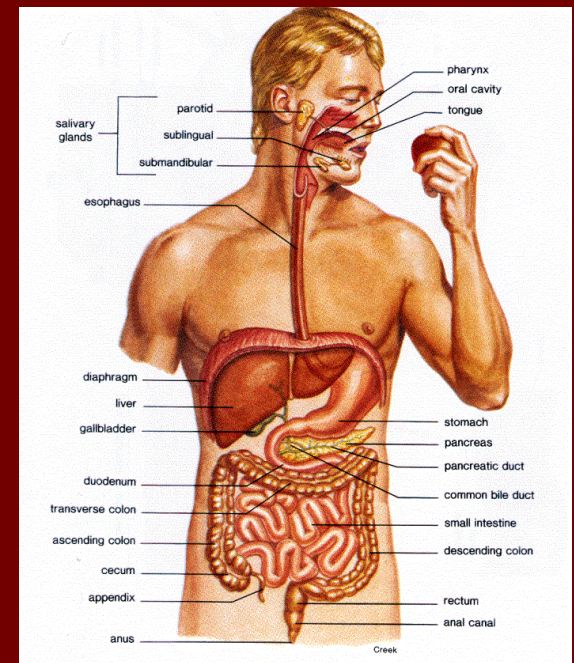
Health Literacy and Health Outcomes

More likely to report health as poor

More likely to lack health insurance

Less use of preventive services

Less knowledge about medical conditions and treatment

Increased health care costs

Increased rates of hospitalization

Current Food Patterns

- Working or single parents, increased stress, long working or commuting hours, little time for food planning or exercise

- Reliance on processed foods, take-out foods, restaurant prepared foods

- >50% of food dollars are spent away from home

- Largest increase in grocery items are pre-prepared foods and packaged foods

- Grocery shopping is now a learned skill
  - Requires calculation, algebra, fractions, percentages

Understanding Food Labels

- Nutrition Label Survey asked 200 primary care patients to interpret food labels

- Most reported using food labels often and that they were easy to understand

- Focused on low or reduced carbohydrate foods

- Asked which of 2 foods had the most of a nutrient

Rothman RL, Housam R, Weiss H, Davis D, Gregory R, Gebretsadik T, Shintani A, Elasy TA. Patient understanding of food labels: the role of literacy and numeracy. Am J Prev Med 2006;31(5): 391-398.

Understanding Food Labels

- 68% had some college education
- 77% had at least 9th grade level literacy skills
- 40% had a chronic illness for which dietary intervention was needed
- 23% reported being on a specific dietary plan

Rothman RL, Housam R, Weiss H, Davis D, Gregory R, Gebretsadik T, Shintani A, Elasy TA. Patient understanding of food labels: the role of literacy and numeracy. Am J Prev Med 2006;31(5): 391-398.
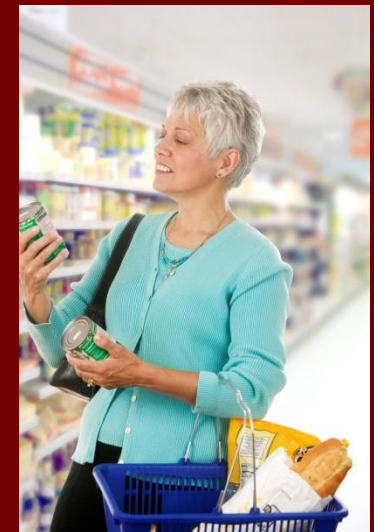
Calculation Question

- If a large soda has 2.5 servings (20 ounces) and one serving has 26 grams of carbohydrate, how many grams of carbohydrate does the large soda have?
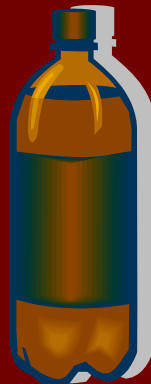
Understanding Food Labels

- 32% of patients could calculate the amount of carbohydrate in a 20 oz soda that had 2.5 servings in a bottle

- 60% could calculate the amount of carbohydrates consumed if they ate half a bagel when the whole bagel was the serving size

Rothman RL, Housam R, Weiss H, Davis D, Gregory R, Gebretsadik T, Shintani A, Elasy TA. Patient understanding of food labels: the role of literacy and numeracy. Am J Prev Med 2006;31(5): 391-398.

Label Reading Errors

Common reasons for mistakes included:

- Misapplication of the serving size

- Confusion by extra information on the label

- Incorrect calculations

Nutrition Facts
Serving Size 3 oz (85g)
Servings Per Container 1

Amount Per Serving	
Calories 180	Calories from Fat 90

	% Daily Value*
Total Fat 10g	**15%**
Saturated Fat 40g	**20%**
Trans Fat 0.5g	
Cholesterol 70mg	**23%**
Sodium 60mg	**3%**
Total Carbohydrate 0g	**0%**
Dietary Fiber 0g	**0%**
Sugars 0g	
Protein 22g	

Vitamin A 0%	•	Vitamin C 0%
Calcium 2%	•	Iron 15%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your caloric needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodiuum	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Factors influencing Nutrition Education in Low Literacy Patients

- Nutrition is a fundamental health education topic

- Hindered by insufficient provider time

- Patients with low literacy turned first to family and friends for health information

- Effective nutrition interventions must:

  – Build on patient's social networks

  – Appear in a visually based, interactive format

  – Be culturally appropriate

Macario E, Emmons KM, Sorensen G, Hunt MK, Rudd RE. Factors influencing nutrition education for patients with low literacy skills. JADA1998;98(5):559-564.
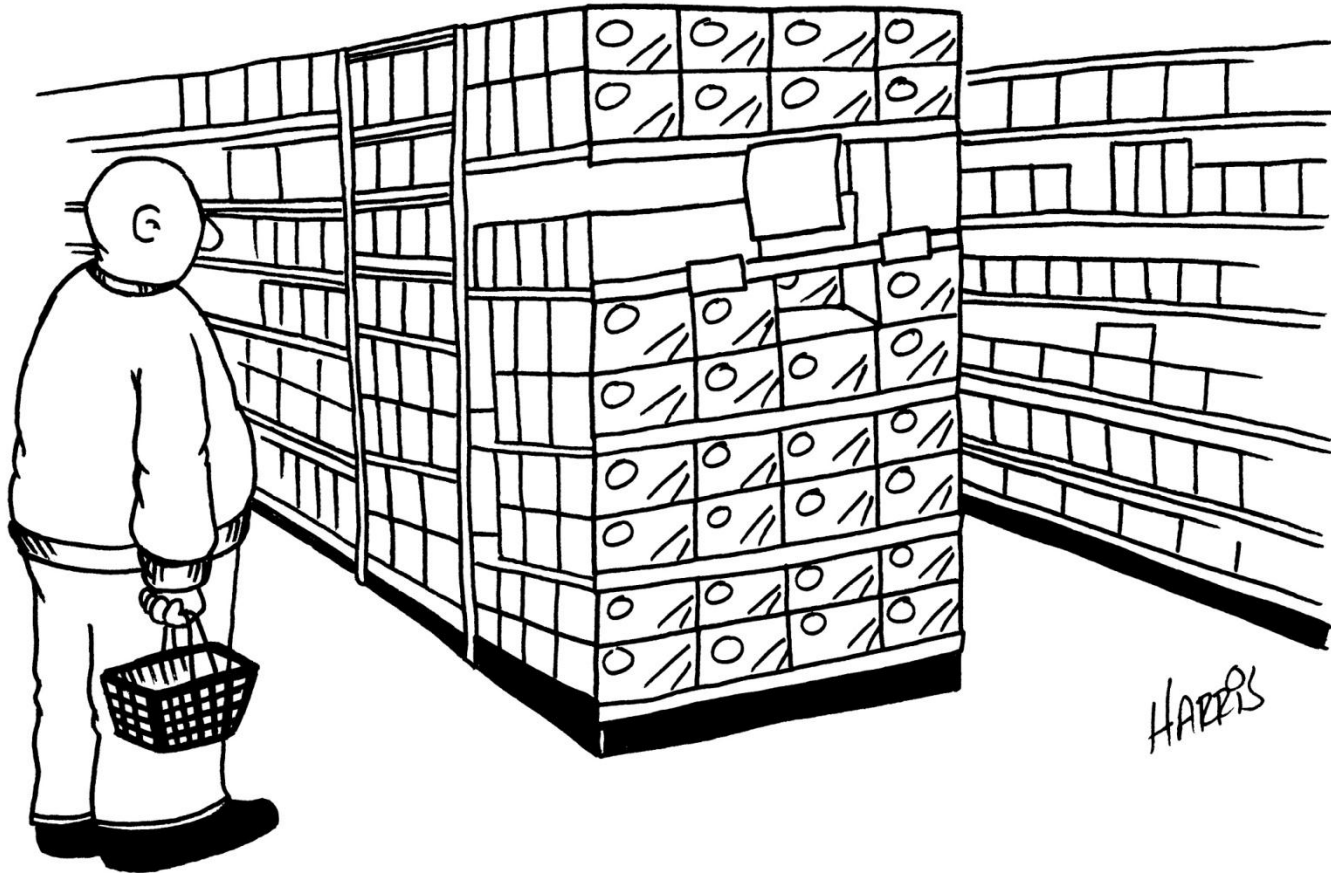
Nutrition Prescription

Family Medicine Center at Lem Turner

1225 Lila Avenue

Jacksonville, Fl 23308

Nutrition Prescription

Patient Name_____Date_____

Patient Signature_____

Nutritionist_____

Exercise Prescription

Family Medicine Center at Lem Turner
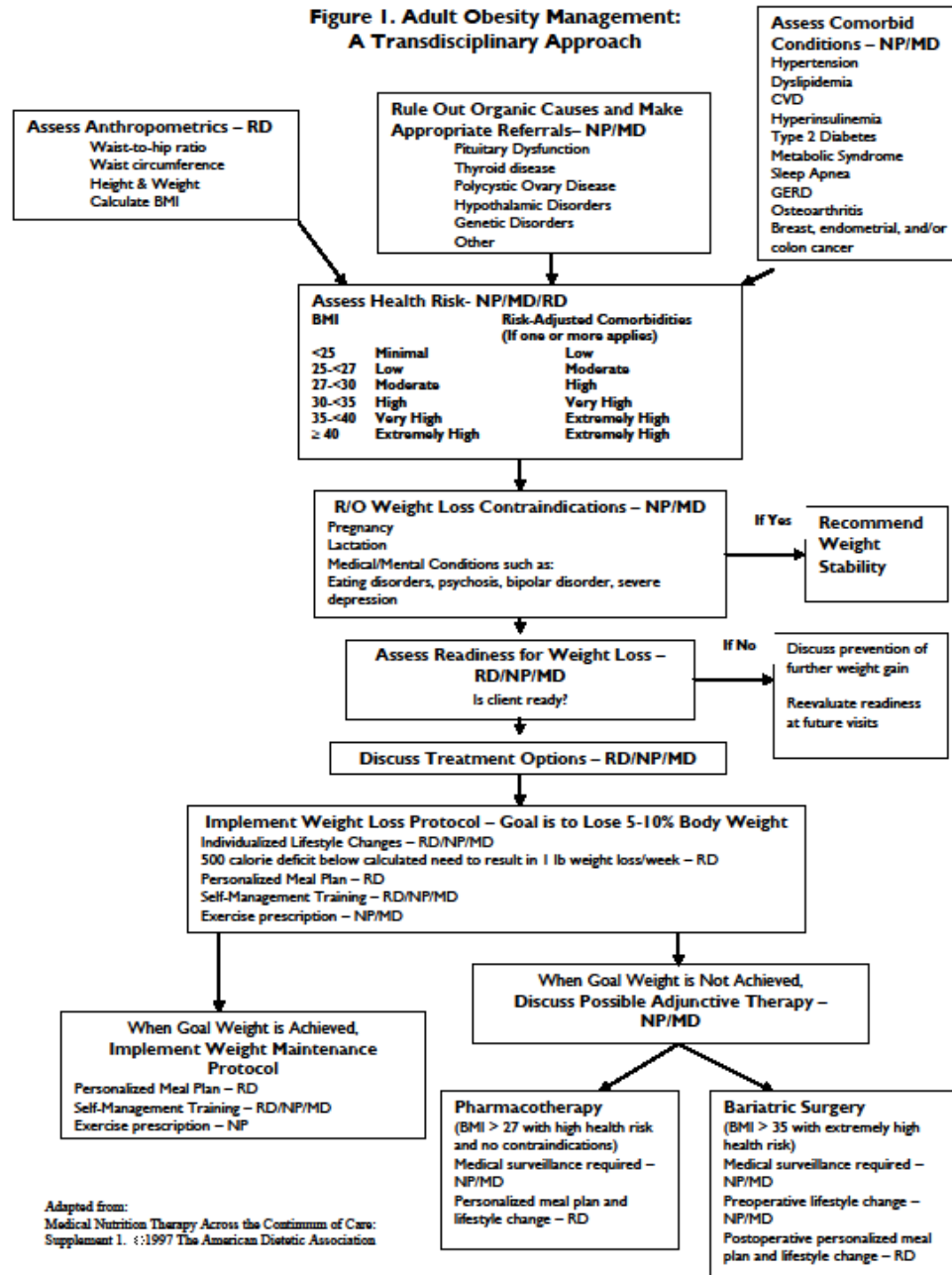
1225 Lila Avenue

Jacksonville, Fl 23308

Exercise Prescription

Patient Name_____Date_____

Patient Signature_____

NP _____

Figure 1. Adult Obesity Management:
A Transdisciplinary Approach

Assess Comorbid Conditions – NP/MD
Hypertension
Dyslipidemia
CVD
Hyperinsulinemia
Type 2 Diabetes
Metabolic Syndrome
Sleep Apnea
GERD
Osteoarthritis
Breast, endometrial, and/or colon cancer

Assess Anthropometrics – RD
Waist-to-hip ratio
Waist circumference
Height & Weight
Calculate BMI

Rule Out Organic Causes and Make Appropriate Referrals– NP/MD
Pituitary Dysfunction
Thyroid disease
Polycystic Ovary Disease
Hypothalamic Disorders
Genetic Disorders
Other

Assess Health Risk- NP/MD/RD

BMI		Risk-Adjusted Comorbidities (If one or more applies)
<25	Minimal	Low
25-<27	Low	Moderate
27-<30	Moderate	High
30-<35	High	Very High
35-<40	Very High	Extremely High
≥ 40	Extremely High	Extremely High

R/O Weight Loss Contraindications – NP/MD
Pregnancy
Lactation
Medical/Mental Conditions such as:
Eating disorders, psychosis, bipolar disorder, severe depression

If Yes → **Recommend Weight Stability**

Assess Readiness for Weight Loss – RD/NP/MD
Is client ready?

If No → Discuss prevention of further weight gain

Reevaluate readiness at future visits

Discuss Treatment Options – RD/NP/MD

Implement Weight Loss Protocol – Goal is to Lose 5-10% Body Weight
Individualized Lifestyle Changes – RD/NP/MD
500 calorie deficit below calculated need to result in 1 lb weight loss/week – RD
Personalized Meal Plan – RD
Self-Management Training – RD/NP/MD
Exercise prescription – NP/MD

When Goal Weight is Not Achieved, Discuss Possible Adjunctive Therapy – NP/MD

When Goal Weight is Achieved, Implement Weight Maintenance Protocol
Personalized Meal Plan – RD
Self-Management Training – RD/NP/MD
Exercise prescription – NP

Pharmacotherapy
(BMI > 27 with high health risk and no contraindications)
Medical surveillance required – NP/MD
Personalized meal plan and lifestyle change – RD

Bariatric Surgery
(BMI > 35 with extremely high health risk)
Medical surveillance required – NP/MD
Preoperative lifestyle change – NP/MD
Postoperative personalized meal plan and lifestyle change – RD

Adapted from:
Medical Nutrition Therapy Across the Continuum of Care:
Supplement 1. ©1997 The American Dietetic Association

Questions