

**Promoting Education for the Cardioprotective Diabetic Diet:
Overcoming Barriers to Learning in the Acute Care Setting**

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Introduction

The ADA Evidence Analysis Library provides full details regarding the importance of lifestyle interventions to optimize cardiovascular disease risk factor reduction. Education and counseling may be provided by a registered dietitian or under the direct supervision of a registered dietitian, offering patients the information necessary to understand the importance of lifestyle changes. However, information alone remains inadequate to improve patient outcome. According to the Journal of the American Dietetic Association, diet quality 1 year following discharge remains poor³⁵. Patients must absorb information given by health professionals before they can act on the information. 19% of patients in an Oregon study did not know how to restrict fluid intake, 38% believed they should drink lots of fluids, and only 1/3 avoided salty foods even though 80% knew they should limit their salt intake²⁵. These common misconceptions are evidenced by studies demonstrating frequent readmission rates because patients' inability to recognize early warning signs delays patient interaction with a health professional until the problem becomes severe enough for emergency hospital admission. In a study by Leventhal in 2005, 47% of patients discharged following hospital admission were readmitted within 90 days²¹. Research and theorists continue to develop and apply education and behavior change theories to patient learning.

Theories to Consider for Effective Education:

“Ecological Approaches to Self Management: The Case of Diabetes”

3 essential features of multiple behavior change models or theories:

1. Identification of objectives or goals,
2. Learning of skills to achieve objectives
3. Facilitation and reinforcement of skills and their execution¹⁰

Maslow’s Hierarchy of Need (Original 5 Stage Model): A person addresses his/her most basic (physiological) needs first, including food, shelter, and water.

“Taking A.I.M.”

1. Assess the learner and learning needs
2. Identify barriers to learning
3. Motivate the patient to make changes

“OARS:”

1. **O**pen-ended questions
2. **A**ffirmation of the person’s strengths
3. **R**eflective listening
4. **S**ummary¹⁶

The Transtheoretical Model of Behavior Change:

1. Precontemplation
2. Contemplation
3. Preparation
4. Action
5. Maintenance¹⁸

RSSM

1. Individualized assessment
2. Collaborative goal setting
3. Skills enhancement
4. Follow-up and support
5. Access to resources
6. Continuity of quality clinical care¹⁰

Diabetic and/or Heart Disease Case Studies

Case A: .S. admitted 2-20-08 with complaint of shortness of breath and weakness

Medical Diagnosis & Physician Plan:

1. Respiratory Failure/Congestive Heart Failure
2. Idiopathic pulmonary fibrosis with pulmonary hypertension
3. Diabetes (aggravated by recent steroid use)
4. Azotemia (prerenal disease) caused by heart failure; acute renal failure

Discharged 2-22-08

Reason for Consult: Weight loss >10 pounds.

Assessment:

Gender: Female

Race: Caucasian

Age: 80

Height: 5'6"

Current Weight: 155 lbs

1-30-08: 172 lbs

*BMI =*25

% Weight Loss: 9.9%

Related Past Medical & Surgical History: chronic respiratory insufficiency, pulmonary hypertension, congestive heart failure, diabetes mellitus, Azotemia, hypokalemia, osteoarthritis; cholecystectomy.

Tests: Radiology reports mild atelectasis at base of left lung and mild edema of the heart.

Current Related Medications: Furosemide with digoxin, albuterol, prednisone.

Diet Order: Regular (Patient does not have elevated potassium or phosphorous eliminating need for renal diet in her acute state.)

Intake: Minimal, <25%

- Patient depressed and too weak to prepare food. Intake decreased after discharge home from rehabilitation facility 1 week prior.
- Patient reports cravings for food but quickly loses interest when presented with food.
- Daughter reports patient as a "picky eater."

Lab	2-20	2-21	Normal Range
BUN	49	61	5-25
Creatinine	1.8	1.7	0.5-1.5
Glucose	249	219	70-115 mg/dL
Sodium	134	133	135-146 mmols/L
BNP	1731	-----	
Prottime	-----	61.5	8.5-12.0 seconds

Nutrition Prescription: Diabetic Cardioprotective diet. 1700 kilocalories and 70 grams of protein. Patient's protein needs must be compromised between 1.5-2.0 g/kg for respiratory failure and 0.6-0.8 g/kg for azotemia.

Diagnosis

1. Involuntary weight loss related to inability or decreased inability to prepare food as evidenced by severe weight loss.

- Inadequate intake related to feeding habits as evidenced by consumption of less than 50% of meals or less than estimated needs.

Intervention

- Meals and snacks. Medical food supplement. Add more frequent exposures to food to increase overall intake with Carnation Instant Breakfast Lactose Free Plus. Follow patient preferences for meals and snacks.
- Microwave entrees or daughter plate foods for patient. County social services go to home and assess patient needs for assistance, cleaning, cooking. Assessment by occupational therapy.

Monitoring & Evaluation: Increased total energy intake. Patient will consume >50% of meals and snacks to meet >50% of assessed needs.

Case B: S.D. admitted 3-11-08 with complaint of diabetic ketoacidosis

Medical Diagnosis & Physician Plan:

- Diabetic ketoacidosis.
- Consider acute acalculus Cholecystitis, chronic Cholecystitis, gastric reflux.

Discharged 3-13-08

Reason for Screening:

Assessment:

Gender: Male *Race:* Caucasian *Height:* 6'0"
Current Weight: 200 lbs *BMI =*27.1 (Overweight) *Age:* 36

Related Past Medical & Surgical History: diabetic ketoacidosis, hypertension

Tests: Periportal edema, normal head CT, sigmoid diverticulosis, no cholelithiasis, thickened gallbladder, normal chest x-ray, normal hepatobiliary and gallbladder contraction

Current Related Medications: Aspart Novolog, Lantus, pantoprazole, metoclopramide, and morphine sulfate.

Diet Order: Clear Liquid

Intake: 100%

- Hospitalist and Diabetes educator report that patient lacks funds for strips to test, medications, or for outpatient diabetes education. Patient instinctively can count carbohydrates in his head. Patient referred to a free clinic for follow up.

Lab	3-11	3-13	Normal Range
HgbA1c	9.93%	-----	<6.5
Magnesium	-----	2.4	
Glucose	-----	156	70-115 mg/dL
MCHC	-----	36.1	
Urinary ketones	-----	80	

Nutrition Prescription: 2000 kilocalories and 90 grams of protein with consistent carbohydrates or diabetic diet.

Diagnosis: Limited adherence related to self-monitoring deficit as evidenced by lack of finances to purchase test strips.

Intervention: Referral to social worker for financial assistance options.

Monitoring & Evaluation: Decrease hemoglobin A1C to less than 7%. Food/Glucose library.

Case C: _J. admitted 2-20-08 with complaint of acute onset of chest pain.

Medical Diagnosis & Physician Plan (2-25):

1. Pulmonary embolism
2. Hemoptysis
3. Cardiomyopathy
4. Possible pneumonia

Final Diagnosis

1. Alveolar hemorrhage secondary to pulmonary embolus and anticoagulation, resolved (discontinued anticoagulation because of hemorrhage).
2. Pulmonary embolism on coumadin (receiving low doses after hemorrhage).
3. Hypoxia secondary to alveolar hemorrhage, improving.
4. Cardiomyopathy, stable.

Discharged 2-28-08

Reason for Consult:

Assessment:

Gender: Male

Race: African-American

Height: 5'9"

Current Weight: 248 lbs

BMI =36.6 (Obese)

Age: 50

Related Past Medical & Surgical History: congestive heart failure, defibrillator placement, history of pneumonia, 1 alcohol drink daily, cocaine use, 1 pack of cigarettes daily, atrioventricular block, left bundle branch block, pneumonic infiltrate and clot.

Tests: Chest x-rays showed basilar pneumonia (2-22), pulmonary hemorrhage with trace effusion, stable bilateral adenopathy with cardiomegaly (2-24), increased pulmonary edema, stable cardiomyopathy (2-27).

Medications Prior to Admission: aspirin, amiodarone, enalapril, spironolactone, toprol

Current Related Medications: enoxaparin, nicotine transdermal, nicotine patch, aspirin, enalapril, amiodarone, spironolactone, metoprolol, piperacillin.

Discharge Medications: Augmentin, coumadin, Lasix, lisinopril, OxyContin, Percocet, Colace, protonix, toprol, amiodarone, nicotine patch, oxygen by nasal canula.

Diet Order: Cardiac

Intake: 100%

Diet History: Patient was in pain, was partially edentulous, and had minimal hearing in right ear. Patient reports minimal protein intake along with avoidance of sodas, coffee,

and acidic foods such as tomatoes. “I used to eat chicken, but I don’t eat meat much anymore.” Patient enjoys ice cream.

Lab	2-21	2-23	2-25	2-26	3-3	Normal Range
BUN				37		5-25
Creatinine				1.6		0.5-1.5
GFR				49		>60
Sodium	134			135		135-146 mmols/L
Phosphorous		6.4				
Magnesium		2.8				
BNP			239			
Protime				30.0	18.7	8.5-12.0 seconds
Prothrombin time	13.3					

Nutrition Prescription: 1900 kilocalories and 90-112 grams of protein

Diagnosis: Inadequate protein intake related to chewing difficulty as evidenced by intake <35 grams protein daily.

Intervention: Encourage increased variety of protein sources.

Monitoring & Evaluation: Monitor patient adequacy of protein intake. Patient states at least 3 sources of protein he will consume regularly.

NOTE: Follow-up interview with patient 4 days later to re-assess due to pain and some confusion during the first interview. Follow-up revealed patient consumes adequate sources of protein to meet needs. Planned intervention no longer appropriate.

Case D: S.D. admitted 2-26-08 with complaint of visual disturbance and polyuria/polydipsia for 3 weeks.

Medical Diagnosis & Physician Plan:

1. Diabetic Ketoacidosis and no history of diabetes mellitus.
2. Elevated creatinine, hydrate with IV fluids.
3. History of Gout, adjust allopurinol to renal dose.
4. Coronary artery disease.
5. Hypertension, resume outpatient medications but no diuretic.

Final Diagnosis: new onset of diabetes mellitus with anion gap acidosis, new type 1 diabetes versus “stressed” type 2 with hyperosmolar syndrome.

Discharged 2-28-08

Reason for Consult: Physician referral for new onset diabetes mellitus.

Assessment:

Gender: Male *Race:* Caucasian *Height:* 5’9”
Current Weight: 232 lbs *BMI* =34.2 (Obese) *Age:* 63

Related Past Medical & Surgical History: hypertension, gout, coronary artery disease status post 4 vessel coronary artery bypass graft (1999). No family history of diabetes. 1-2 beers once a week, no tobacco use.

Current Related Medications: Novolin, KCl, clonidine, valsartan, amlodipine, simvastatin, tamsulosin, allopurinol, pantoprazole, and metoprolol.

Discharge Medications: clonidine, diovan/hydrochlorothiazide, metoprolol, norvasc, simvastatin, flomax, aspirin, allopurinol, lantus pen (40 units every morning), novolog pen (3 units immediately prior to each meal, plus 1 unit for every 30 mg per deciliter of glucose over 90), and scaled dose insulin at bedtime.

Diet Order: Clear Liquid

Intake: <50% due to dislike of liquid diet

Discharge Diet: 1800 kilocalorie and carbohydrate conscious diet.

Diet History: Only eats evening meal, but drinks 8 cups of coffee and multiple sodas throughout the day.

Lab	2-27	2-28	Normal Range
BUN	26	16	5-25
GFR	50	60	>60
CK	426		
ALT	45		4-44 IU/L
Glucose	237	245	70-115 mg/dL
Urinary ketones	40		

NOTE: Glucose 900 at primary physician and 530 at admission.

Nutrition Prescription: 1950 kilocalories and 92-116 grams of protein with consistent carbohydrates. 16 carbohydrates daily.

Diagnosis: Inconsistent carbohydrate intake related to new diagnosis diabetes mellitus (related to knowledge deficit) as evidenced by diet history of 1 meal daily.

Intervention: Initial/Brief education.

Monitoring & Evaluation: Patient stated meal plan for a day with 3-4 carbohydrates per meal.

Follow-up 2-28: Patient and wife asked when to take insulin when going out to eat at a restaurant. Counseled to patient and his wife about taking Novolog when food arrives at the table before beginning to eat.

Discussion

Although many studies demonstrate the successful utilization of theory-based patient education, application of theory in the acute care setting proves difficult at times. “Taking A.I.M.” encourages assessment of the learner prior to teaching. A high demand for a patient’s attention from a variety of sources combined with a dietitian’s high patient load creates a challenging environment to assess and educate patients quickly, efficiently, and appropriately. Both patient A and patient C underwent a battery of tests, proving difficult to catch between tests. With so many areas of care attempting to visit each patient, only 5-15 minutes remain available for each team member. Patient D was a newly diagnosed diabetic, bringing many caregivers to his room for survival educations and constant blood glucose monitoring. Patient B was discharged within 48 hours, providing inadequate time for all team members to address his needs. When I attempted to visit him, his discharge medications were being written with the assistance of the diabetes educator. Since I could not interview the patient prior to discharge, I spoke with the hospitalist and the diabetes educator for information regarding the patient. Collaborating with other team members utilized the “identify key resources and supports for self-management (RSSM)” theory.

Assessing patient needs can be difficult in the presence of pain, cognitive deficits, aphasia, hunger, phone calls, and other physical or environmental distractions. Patient C experienced discomfort and pain during the initial interview, resulting in an incomplete diet history. In line with Maslow’s Hierarchy of Needs, the patient’s basic physiological needs required attention before addressing higher needs. In the follow-up interview when the patient was no longer in pain, he clarified his diet history, demonstrating a balanced diet with adequate sources of protein. One method to overcome the assessment barrier is to draw on family or caretakers for information. I later learned that patient C’s mother and younger brother prepared all of his meals. Both family members were unable to visit the patient during the day, creating a common hindrance to utilizing the family as a resource. To overcome this timing issue, phone the family. Although a face-to-face interview is the most valid technique, a conversation with a family member still offers a sense of the patient and the patient’s home environment to facilitate an assessment. Therefore, the two family members could have served as reliable resources.

However, family can also serve as a distraction. Both patients A and D had family members present during the interview, distracting the attention of the patients and decreasing the participation of capable patients. Methods to overcome a distracted interview include returning at a later time, approaching the nurse or other team members, and utilizing the chart for laboratory data and other nutritional history. Additionally, patient A was not appropriate for education; the assessment revealed the patient’s need for daily feeding assistance to address her minimal self-feeding ability along with her severe weight loss. I referred her to social work and recommended an assessment of her self-care abilities.

With patients A, C, and D, I applied the “OARS” technique. Employing open-ended questions maintained a positive atmosphere and prevented the patients from feeling judged by his or her answers to diet history questions. Instead of asking what high-fat foods a patient consumes, I asked what the patient’s average day of eating consists of. After the patients finished telling me about their day’s food and pattern of

consumption, I repeated their responses before asking them to specify missing pieces such as what they drink throughout the day or portion sizes. If a patient included a guilty comment regarding enjoying foods they believed were “bad,” I usually encouraged them by affirming healthier choices they already made or discussing small changes to make a healthier choice. For example, patient D consumed 8 cups of coffee daily and felt guilty about not drinking any water during the day. I encouraged him to begin by replacing 3 cups of coffee with water. One barrier to drinking more water (and less coffee) was the availability in his office. He also expressed concerns regarding time constraints. To address both issues, we discussed placing some bottled water in his desk drawer.

The Transtheoretical Model of Behavior Change exhibits the weighing of pros and cons, matching intervention with the individual patient’s readiness¹⁸. According to Kavookjian, the cons of change outweigh the pros during the precontemplation phase. Reigel found that the most effective motivator for patient change was the patient fear of returning to the hospital²⁹. Patient D, recently diagnosed with diabetes mellitus after admission for heart failure, enters the contemplation phase after deciding that he will do anything to prevent another visit to the hospital. If I notice a patient guarding their diet history, I mention “guilty” foods I enjoy, which usually helps the patient become more open to admit “guilty” foods as well. To motivate the patient to move into the next stage of behavior change, I also affirm the patient’s hesitations by mentioning past patients’ similar hesitations. This creates an accepting environment for the patient and assists in removing defense mechanisms by the patient. Patient C admitted daily consumption of ice cream after I mentioned some sweets I enjoy and asked the patient if he enjoyed any of them.

Although patient’s diet histories demonstrate appropriate diet and intake, lab values and disease states tend to promote the opposite. To address this possible gap during patient interviewing, Duffy studied the use of food and beverage preference surveys in place of the dietary recall normally utilized in health risk appraisals⁵. Duffy found a positive relationship between fat preference and intake, sweets preference and intake, and fat preference and adiposity measured by BMI and waist circumference⁵. With many patients I not only ask them what they *usually* eat, but I also asked them what foods they enjoy *sometimes*. With patients C and D, this preference query identified desserts that the patients enjoyed almost *daily*, which were not mentioned in the patients’ original diet histories even after inquiring about other foods or beverages the patients ate or drank between or after meals.

Many studies have pointed out the importance of providing low literacy, low vision materials, not only to overcome those barriers, but also to address patient complaint of feeling overwhelmed by mass text²⁶. Increasing visual education methods addresses the literacy, language, and hearing barriers. Including auditory teaching methods addresses low literacy and low vision. By addressing basic barriers to learning such as those previously listed, the patient becomes more empowered by his/her confidence in learning. Although patient D was highly educated, the new diagnosis of diabetes along with his heart disease promoted stress and anger. Survival education materials must maintain simplicity even for high literacy patients to address other barriers to learning such as patient D’s.

Although patients experience many distractions and require basic education in the hospital, patients require more in-depth information post-discharge, especially after

attempting to manage their disease on their own. One successful teaching tool utilized by an insurance company's statewide promotion of self-management for heart failure included a patient education folder²³. The patient receives the folder in the hospital and receives face-to-face education along with reinforcement after discharge based upon the folder's contents and an assessment of the patient's comprehension. The patient education folder contained an interdisciplinary teach flow sheet, an interactive workbook for information retention, a one-page summary on heart failure management, a wallet card with warning signs and emergency action plan, breathing and relaxation exercises, weight logs, and discharge instructions. All team member education referenced the information in the folder and the materials were cross-referenced to enable the patient to locate key information.

Another aspect of RSSM is access to resources. Patient B lacked the financial means to purchase medications and test strips to self-manage his diabetes. To overcome his lack of resources, the team referred him to a local free clinic and a social worker who may be able to direct the patient to financial support options available in the area. The free clinic includes a dietitian who can follow up and educate the patient further on carbohydrate counting to reinforce what he learned from the diabetes educator. Follow-up reassessment and reintroduction of education reinforces knowledge and promotes improved comprehension as well as re-focusing the education to the patient's current needs. Perhaps a patient desires to increase physical activity a couple months after discharge, but he or she fears the affect on his or her diabetes or heart disease. A follow-up to reassess the patient's food and activity habits increases the patient's comfort to make the behavior change. I always provide contact information for the patient of the dietitian, and discharge services and the diabetes educator also provide contact information. Taking an extra step to schedule an appointment for an outpatient follow-up while the patient is in the hospital may increase patient comprehension of in-patient education. The patients are so distracted while they are in the hospital that they remain unable to express every concern in the 15 minutes spent with me. Although I try to think ahead according to the patient's lifestyle and financial situation, patients develop questions after attempting to manage their diabetes or heart disease at home.

Another option to address outpatient questions is to conduct a follow-up phone call. Many studies have demonstrated that follow-up phone calls decrease readmissions and shorten length of stay²³. This follow-up re-evaluates the patient's comprehension of previous education and corrects patient misunderstandings or gaps in patient comprehension. The follow-up also allows the dietitian to address any barriers or questions the patient has come across since discharge. Since many patients are not in the hospital long enough for a follow-up visit with the dietitian, a phone call would reassure patients for their comprehension and correct actions and manage many issues. The follow-up also serves as a means to identify early warning signs of complications before the health issue worsens.

Recommendations

The acute care setting offers many challenges to the dietitian in promoting retention of self-care information and behavior change. Successful options for improving patient education include increased utilization of telephone follow-ups; interdisciplinary teaching flow sheets; scheduling follow-up outpatient appointments; providing simplified access to multiple resources; addressing financial, physical, or environmental barriers to behavior change; utilizing creative problem solving skills; and applying a variety of learning models or education techniques to address all learners. Although many barriers remain in patient education in the acute care setting, utilizing a variety of resources, initiating increased contact with dietitians, and addressing patient issues with respect and acceptance promotes an environment for improved outcomes.

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- 36.

Glossary

1. Acute acalculus Cholecystitis: inflammation of the gallbladder without gall stones
2. Albuterol: bronchodilator that relaxes muscles in the airways and increases air flow to the lungs
3. Allopurinol: used to lower blood uric acid levels. Uric acid is a breakdown product of purines in foods.
4. Alveolar hemorrhage: bleeding in air sacs of lungs
5. Amiodarone: antiarrhythmic that treats ventricular tachycardia or ventricular fibrillation
6. Amlodipine/ Norvasc: long-acting calcium channel blocker used as an anti-hypertensive and in the treatment of angina; vasodilator
7. Aphasia: difficulty understanding the speech of others and/or expressing oneself verbally; difficulty finding words
8. Aspart Novolog: rapid-acting insulin
9. Aspirin: blood thinner
10. Augmentin: antibacterial
11. Azotemia: acute prerenal disease.
12. Cardiomyopathy: enlarged and weakened heart muscle
13. Cholecystectomy: surgical removal of the gall bladder.
14. Chronic Cholecystitis: chronic inflammation of the gallbladder
15. Clear liquid diet: room temperature clear juices, broths, hard candy, ices and gelatin to maintain hydration
16. Clonidine: adrenergic antagonist that treats hypertension
17. Colace/docusate: simulates salt and water secretion into the colon and promotes movement of stool through the colon; laxative/stool softener
18. Coumadin: Warfarin = blood thinner
19. Diabetic ketoacidosis (DKA): inadequate insulin levels resulting in high blood sugar and accumulation of organic acids and ketones in the blood
20. Digoxin: a cardiac glycoside that can help a weakened heart to function properly. Digoxin increases the strength of the heart muscle, helps to maintain a normal heart rhythm, and helps to remove excess water from the body. Digoxin can relieve symptoms of congestive heart failure, a condition that reduces the ability of the heart to pump enough blood through the body. These symptoms include swelling of the feet and legs, difficulty breathing, and extreme tiredness or weakness. It can also help to regulate heart rhythm problems.
<http://www.drugdigest.org/DD/DVH/Uses/0,3915,205%7CLanoxicaps,00.html>
21. “Ecological Approaches to Self Management: The Case of Diabetes” emphasized individual responsibility for day-to-day care of self over the length of illness and determined 3 essential features of multiple behavior change models or theories: (1) Identification of objectives or goals, (2) learning of skills to achieve objectives, and (3) facilitation and reinforcement of skills and their execution¹⁰.
22. Enalapril: ACE inhibitor to treat hypertension
23. Enoxaparin: low molecular weight Warfarin = blood thinner
24. Furosemide/Lasix: K⁺-depleting loop diuretic

25. Gout: metabolic arthritis; an acute, recurrent disease characterized by painful inflammation of the joints and by an excess of uric acid in the blood, forming uric acid crystals.
26. Hemoptysis: coughing up of blood from the respiratory tract
27. Hypoxia: shortage of oxygen blood
28. Identify key resources and supports for self-management (RSSM), including individualized assessment, collaborative goal setting, skills enhancement, follow-up and support, access to resources, and continuity of quality clinical care¹⁰.
29. Idiopathic pulmonary fibrosis: Gradually, the air sacs of the lungs become replaced by fibrotic tissue. When the scar forms, the tissue becomes thicker causing an irreversible loss of the tissue's ability to transfer oxygen into the bloodstream. Symptoms: shortness of breath, particularly with exertion; chronic dry, hacking cough; fatigue and weakness; discomfort in the chest; loss of appetite; rapid weight loss.
30. KCl: used to balance electrolytes, especially if patient is taking a K⁺-depleting loop diuretic
31. Lantus: long-acting insulin (glargine)
32. Lisinopril: ACE inhibitor to treat HTN, CHF
33. Maslow's Hierarchy of Need (Original 5 Stage Model): A person addresses his/her most basic (physiological) needs first, including food, shelter, and water. Then safety needs, belongingness & love needs, esteem needs, and self-actualization needs can be addressed in this order.
34. Metoclopramide: potent [dopamine receptor antagonist](#) used for its [antiemetic](#) and [prokinetic](#) properties. Thus it is primarily used to treat nausea and vomiting, and to facilitate [gastric](#) emptying in patients with [gastroparesis](#).
35. Morphine sulfate: painkiller
36. Nicotine transdermal: patch to help smokers quit
37. Novolin: short-acting insulin
38. "OARS:" Open-ended questions, Affirmation of the person's strengths, Reflective listening, and Summary¹⁶.
39. OxyContin: painkiller
40. Pantoprazole/protonix: proton pump inhibitor
41. Percocet: painkiller
42. Piperacillin: antibiotic (kind of a penicillin)
43. Prednisone: a corticosteroid (used for allergic disorders, ulcerative colitis, psoriasis and arthritis).
44. Pulmonary embolism: blocked pulmonary artery
45. Pulmonary hypertension: high blood pressure in the arteries that supply the lungs.
46. Simvastatin: antihyperlipidemic agent that is an HMG-CoA reductase inhibitor, used to lower blood cholesterol
47. Spironolactone: K⁺-sparing diuretic
48. "Taking A.I.M." requires the educator to (1) assess the learner and learning needs, (2) identify barriers to learning, and (3) motivate the patient to make changes, which addresses the patient's immediate needs before the patient attempts to change¹⁹. The educator must determine the patient's extent of general health knowledge, the accuracy and validity of that knowledge, what domain of learning

is involved (cognitive – understanding, psychomotor – physical skill, or affective – attitude and emotion), readiness to learn, and self-efficacy¹⁹.

49. Tamsulosin/Flomax: α 1a-selective alpha blocker used in the symptomatic treatment of BPH
50. Toprol/metoprolol/lopressor: antihypertensive, beta-blocker
51. The Transtheoretical Model of Behavior Change contains 5 stages of change: (1) Precontemplation, (2) Contemplation, (3) Preparation, (4) Action, and (5) Maintenance¹⁸.
52. Valsartan/ Diovan/Hydrochlorothiazide: angiotensin II receptor antagonist that treats hypertension, post MI, CHF