

Myocardial Infarction

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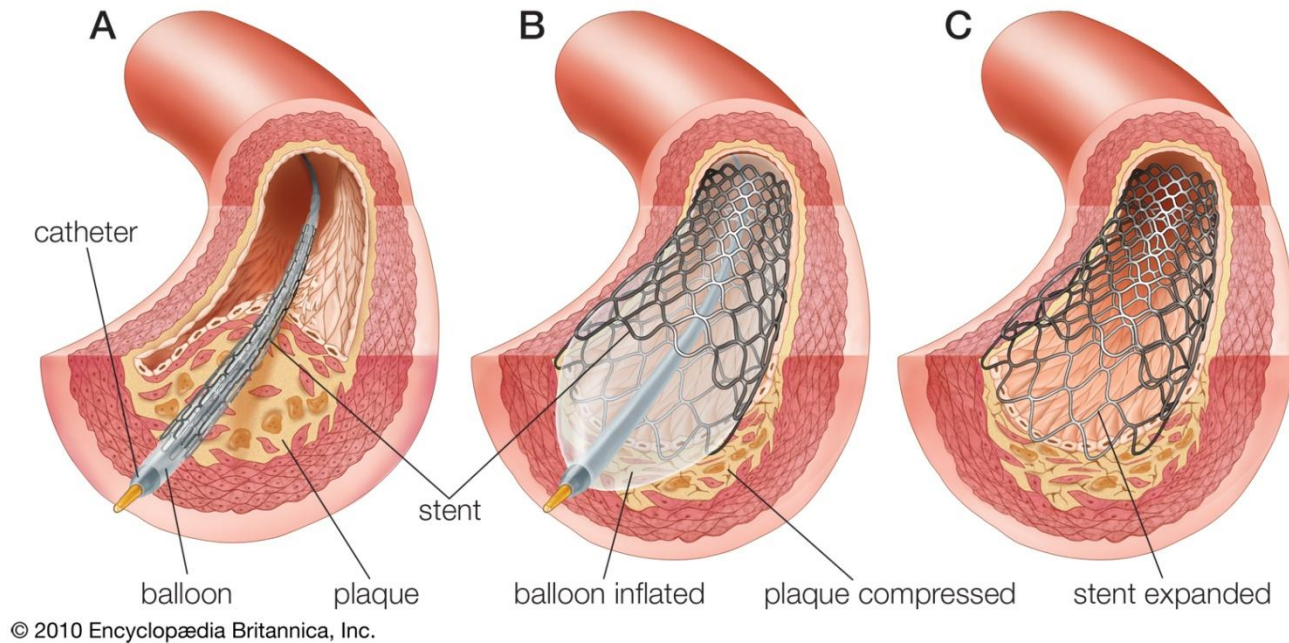
Myocardial Infarction

- <http://www.youtube.com/watch?v=n8P3n6GKBSY>
- Commonly Referred to as a “Heart Attack”
- 2° Atherosclerosis (CAD)



Procedure

- Angioplasty with Stent Placement
- <http://www.youtube.com/watch?v=S9AqBd4RExk>



Prevalence

- **1.2 Million MI Episodes Each Year**

<http://www.nhlbi.nih.gov/health/health-topics/topics/heartattack/>

- **Cardiovascular Disease:**

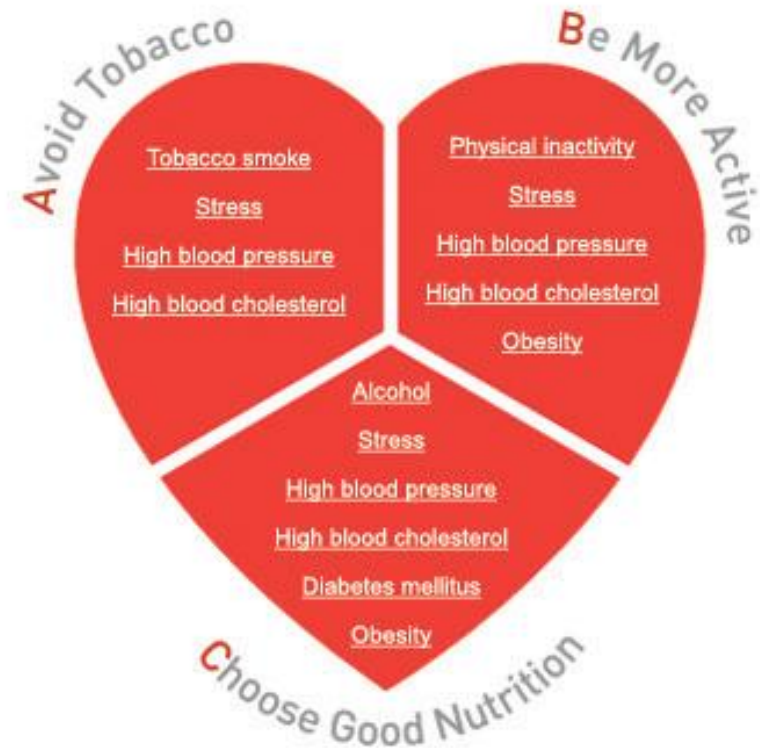
The leading cause of death in the US

(~600,000 deaths/year)

<http://www.cdc.gov/nchs/fastats/lcod.htm>

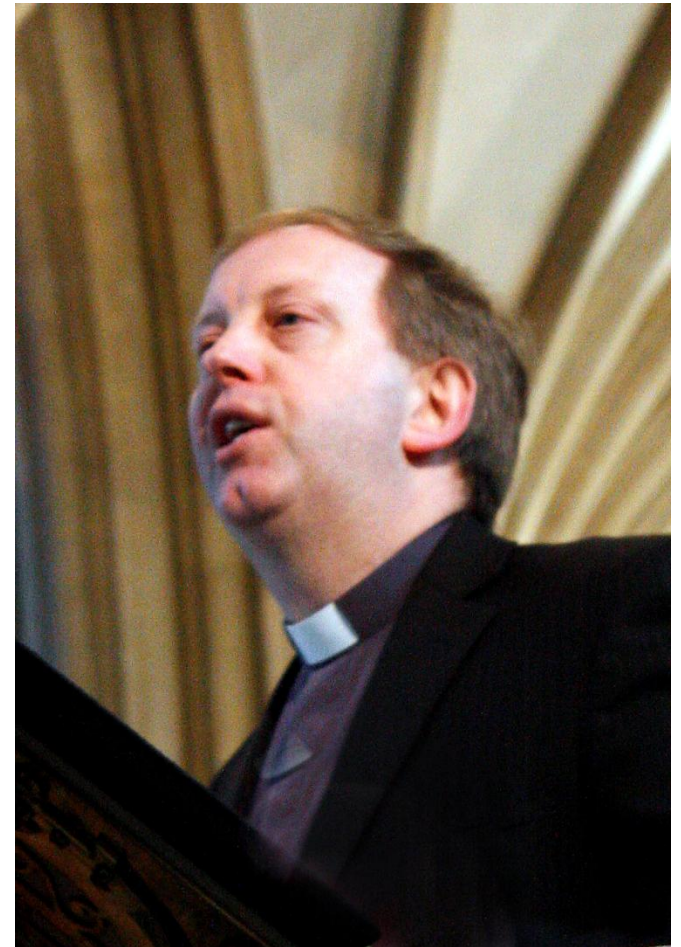
Risk Factors

1. Cigarette Smoking
2. Dyslipidemia
3. Hypertension
4. Diabetes
5. Physical Inactivity
6. Obesity



James Klosterman

- **Sex:** Male
- **Age:** 61 years old
- **Ethnic Background:**
German
- **Chief complaint:** Severe
unrelenting chest pain
- **Admit diagnosis:**
Myocardial Infarction



Anthropometrics

- **Weight:** 185 lbs (84 Kg)
- **Height:** 6'1" (180cm)
- **BMI:** 26.5 (mildly overweight)
- **IBW:** 150-182



Estimated Energy Requirements

- **BEE** = $66.5 + 1159 + 900 - 414 = 1711$ kcals/day
- **TEE** = $1711 \text{ kcals/day} \times 1.4 \times 1.2 = 2875$ kcals/day
- **EER** = **2875 kcals/day**

- $30\text{-}35 \text{ kcals/kg} \times 84\text{kg} = \mathbf{2,520 - 2940 \text{ kcals/kg}}$

- **Protein Req:** 109g/day (1.3g/kg)



Medical History

- Cholecystectomy 10 years ago
- Appendectomy 30 years ago
- History of emphysema/ lung problems
~Smokes 1 pack per day for 40 years
- No prior incidence of Angina
- No known history of hypertension, diabetes or high cholesterol.

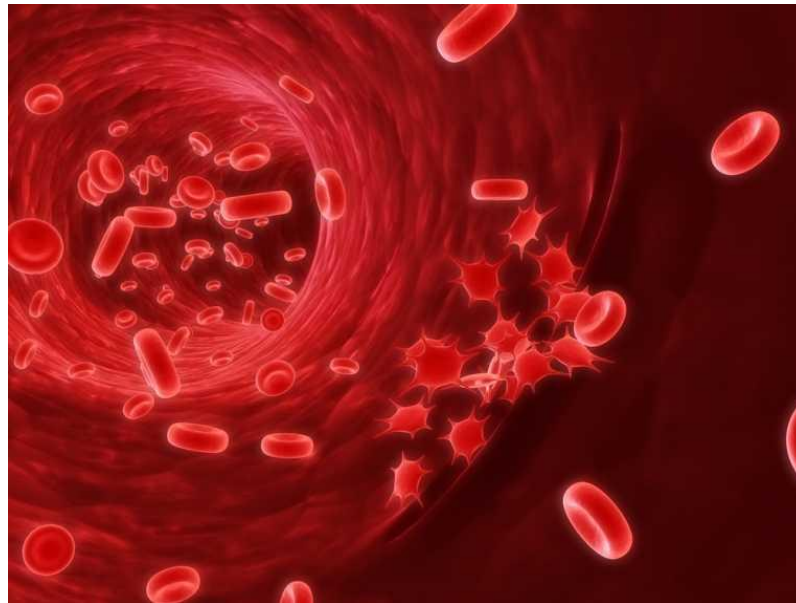
Lifestyle

- 15 minutes of physical activity daily
- **Career:** Lutheran Minister
- Wife shops for and prepares all meals



Risk Factors

- Smokes 1 Pack/Day for 40 years (1RF)
- Father-coronary artery disease and MI at 59 (1RF)
- Low to No Physical Activity (1RF)





Biochemical Assays

	Normal	Day 1	Day 2	Day 3
Total CO2 mEq/l	23-30	20 (L)	24	26
Glucose mg/dL	70-100	136 (H)	106	104
Total Chol mg/dL	120-199	235 (H)	226 (H)	214 (H)
HDL mg/dL	>45 men	30 (L)	32 (L)	33 (L)
LDL mg/dL	>130 men	160 (H)	150 (H)	141 (H)
LDL/HDL ratio	<3.55 men	5.3 (H)	4.7 (H)	4.3 (H)
Apo A L	94-178 men	72 (L)	80 (L)	98
Troponin I ng/dL	<0.2	2.4 (H)	2.8 (H)	-
Troponin T ng/dL	<.03	2.1 (H)	2.7 (H)	-

Dietary History

- No Known Food Allergies
- Previous Diet Consult 1 Year Ago
- Wife Purchases/Prepares All Meals (Switching Oils to PUFAs)

24-Hour Recall	
Breakfast	NONE
Snack	1 Cinnamon Raisin Bagel (LG) 1 T FF Cream Cheese, 8oz Orange Juice, Coffee (black)
Lunch	1 Can (16oz) Vegetable Beef Soup, Sandwich with 4oz Roast Beef, Lettuce, Tomato, Dill Pickles, 2 t Mayo, 1 Apple, 8oz 2% Milk
Dinner	2 Lean Pork Chops (3oz each), 1 Large Baked Potato, 2 t Margarine, ½ c Green Beans, ½ Cup Coleslaw w/ Salad Dressing, 1 Slice Pie
Snack	8oz 2% Milk, 1oz Pretzels

Dietary Analysis – 24 Hr Recall

Nutrient	Intake
Total Calories	2,626 Kcals
Carbohydrate	344g (52%)
Protein	138g (21%)
Fats	78g (27%)
Sat Fat	22g (8%)
Trans Fat	2.1g
Cholesterol	275mg
Sodium/Potassium	5,633mg/5,271mg
Fiber	26g
Vitamin A	4,984 IU
Vitamin C	142mg
Calcium	1064mg
Iron	19.6

Cardiac Diet

- **Specific Dietary Recommendations:**

“MNT is effective at decreasing blood lipid levels and increasing blood levels of folate, vitamin B6 and B12.” (Lim & Choi, Grade I)

- *Education Included:*

- Motivational interviewing
- Transtherotical model
- Information about hyperlipidemia
- Balancing food intake with physical activity
- Cholesterol & fat content of food
- Moderate salt consumption
- Tips for eating out





Cardiac Diet

- Decrease intake of saturated/trans Fats*
~Replace with MUFA's & some CHO*
[from fruits, veg, & whole grains]
*(Berlung et al, Grade I)
- Decrease intake of dietary cholesterol
- Decrease intake of sodium



Diagnosis

- Food and nutrition-related knowledge deficit(NB 1.1) related to limited dietary changes after prior education from community dietitian as evidenced by 24-hour food recall.
- Physical inactivity (NB-2.1) related to heavy smoking and not incorporating exercise into daily routine as evidenced by patient report of 15 minutes daily exercise.

Intervention

- **Meals and Snacks (ND-1)**

Diet Order: Cardiac Diet (AHA Diet)





Intervention



- **Comprehensive Nutrition Education (E-2)**
 - ½-1 cup Daily of **Unsalted Nuts** (NEL Summary)
 - Increase consumption of **plant sterols/stanols** (EAL Summary Statement, Grade I) through rich sources/fortified products
 - ~Wheat germ, corn canola & olive oils, peanuts, almonds, brussels sprouts, rye bread, macadamia nuts, *benecol* & *take control* spreads
 - Switch to ½ **whole grain** baked products
 - Home-made soups or **low sodium** varieties

Intervention

- **Coordination of Other Care During Nutrition Care (RC-1)**
 - **Referral to Cardiac Rehab Center**
 - *Follow up with **Outpatient Dietician**
 - ***Increase Physical Activity** to two 15 min walks each day
 - “Exercise has shown to reduce all cause mortality and cardiac mortality in secondary prevention patients”
(ADA Conclusion Statement Grade II).
 - **Referral to Smoking Cessation Counseling:**
 - ~Smokes 1 pack/day for 40 years



Medications



- Aspirin 160 mg/day

- Lopressor 50 mg/day

*Beta Blocker used to treat high blood pressure and Angina
(take consistently each day, food may increase bioavailability)

- Lisinopril 10 mg/day

*ACE inhibitor used to treat high blood pressure (May Increase lipid levels of **Potassium**)

- Nitro-Bid 9 mg/twice daily

*Vasodilator used to relax and widen blood vessels

- Lipitor 10 mg/day at bedtime

*Statin used to decrease cholesterol (AVOID **GRAPEFRUIT** & RED YEAST RICE)

*It is suggested to avoid alcohol with most of these medications.

Intervention

- **Goals:**

- Patient tolerance of/adherence to cardiac diet (patient consumes >75% of meal trays)
- Serum Lipids Goal: **LDL** < 100 **HDL** >45
- Patient goes to Cardiac Rehab Center
- Patient goes to Smoking Cessation Therapy

ADA Decision Tree Tool

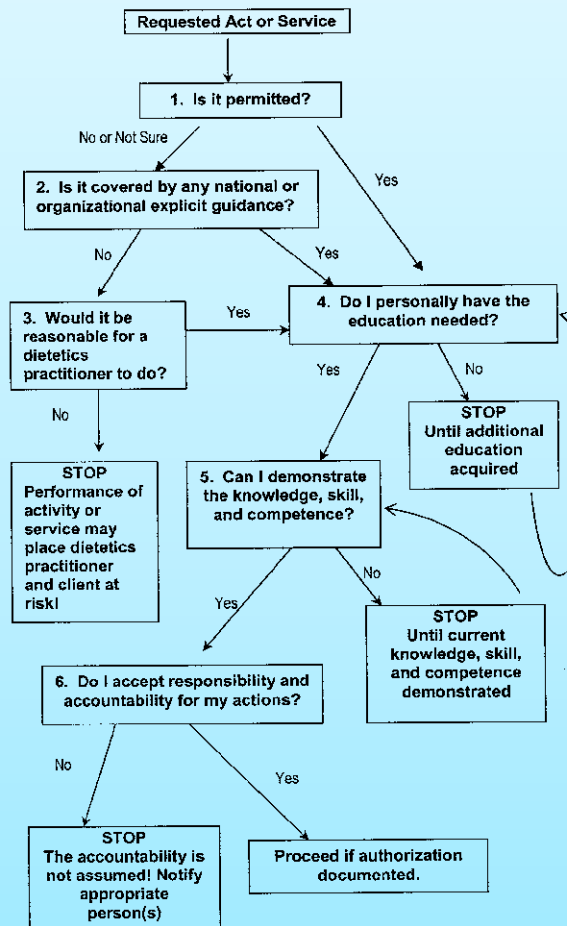
When to use the Decision Tree: Use this tool when trying to determine whether a specific activity or service (such as assuming responsibility for instructing patients with diabetes on insulin pump usage or ordering nutrition related labs) falls within your individual scope of practice.

Instructions for Use:

Start on the left side of the diagram and match numbered boxes with each "Question to Ask Yourself" on the right of the diagram. Fully consider all decision points.

Scope of Practice:

1. Nutrition Education
2. Smoking
3. Physical Activity



Questions to Ask Yourself

1. Does the license or credential I hold permit me to perform this activity or service?
2. Is the activity or service consistent with the following?
 - Entry level dietetics education and credentialing (CADE and CDR)
 - ADA Standards of Practice, Standards of Professional Performance, Code of Ethics
 - ADA position statements or practice papers; dietetics literature/research
 - Nutrition practice guidelines or protocols
 - National organization standards of practice
 - Institution job description or privileges
 - Accrediting Organization Standards
 - Federal Statutes and Regulations
3. Would the activity or service be within the accepted "standard of practice" that would be provided in similar circumstances by reasonable and prudent dietetics practitioners who have similar training, education, skill, competence, and experience?
4. Have I acquired the depth and breadth of knowledge needed to safely and effectively perform this activity or service through training, such as a pre-professional program, a continuing education program, or self-study?
5. Have I personally demonstrated current knowledge, skills, and competence to safely perform this activity or service?
6. Am I personally prepared to accept the consequences of my actions?

IF YOU HAVE ANSWERED YES TO EACH OF THESE QUESTIONS, perform the activity or service with valid order, when necessary, and in accordance with organizational policies and procedures.

Monitoring & Evaluation

- Monitor food intake from trays daily
- Check for patient follow up with outpatient dietitian for lipid monitoring.
- Check for follow up with smoking cessation.



References

1. Berglund L, et al; DELTA Investigators. Comparison of monounsaturated fat with carbohydrates as a replacement for saturated fat in subjects with a high metabolic risk profile: studies in the fasting and postprandial states. *Am J Clin Nutr*. 2007 Dec; 86 (6): 1,611-1,620 (Grade I)
2. Lim HJ, Choi YM, Choue R. Dietary intervention with emphasis on folate intake reduces serum lipids but not plasma homocysteine levels in hyperlipidemic patients. *Nutr Res*. 2008 Nov; 28(11): 767-774. (Grade I)
4. ADA Conclusion Statement (Grade II):
http://www.adaevidencelibrary.com/conclusion.cfm?conclusion_statement_id=303
5. NEL Summary statement: http://www.nel.gov/evidence.cfm?evidence_summary_id=250217
6. ADA Conclusion Statement (Grade I):
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