



**2018 ANNUAL
MEETING**
& EXHIBIT

Oct. 14–17, 2018
Music City Center
Nashville, TN



Session 110PD: Reforming Health Care through Chronic Disease Reversal

10/16/2018
2:00-3:15 p.m.

Reforming Health Care through Chronic Disease Reversal

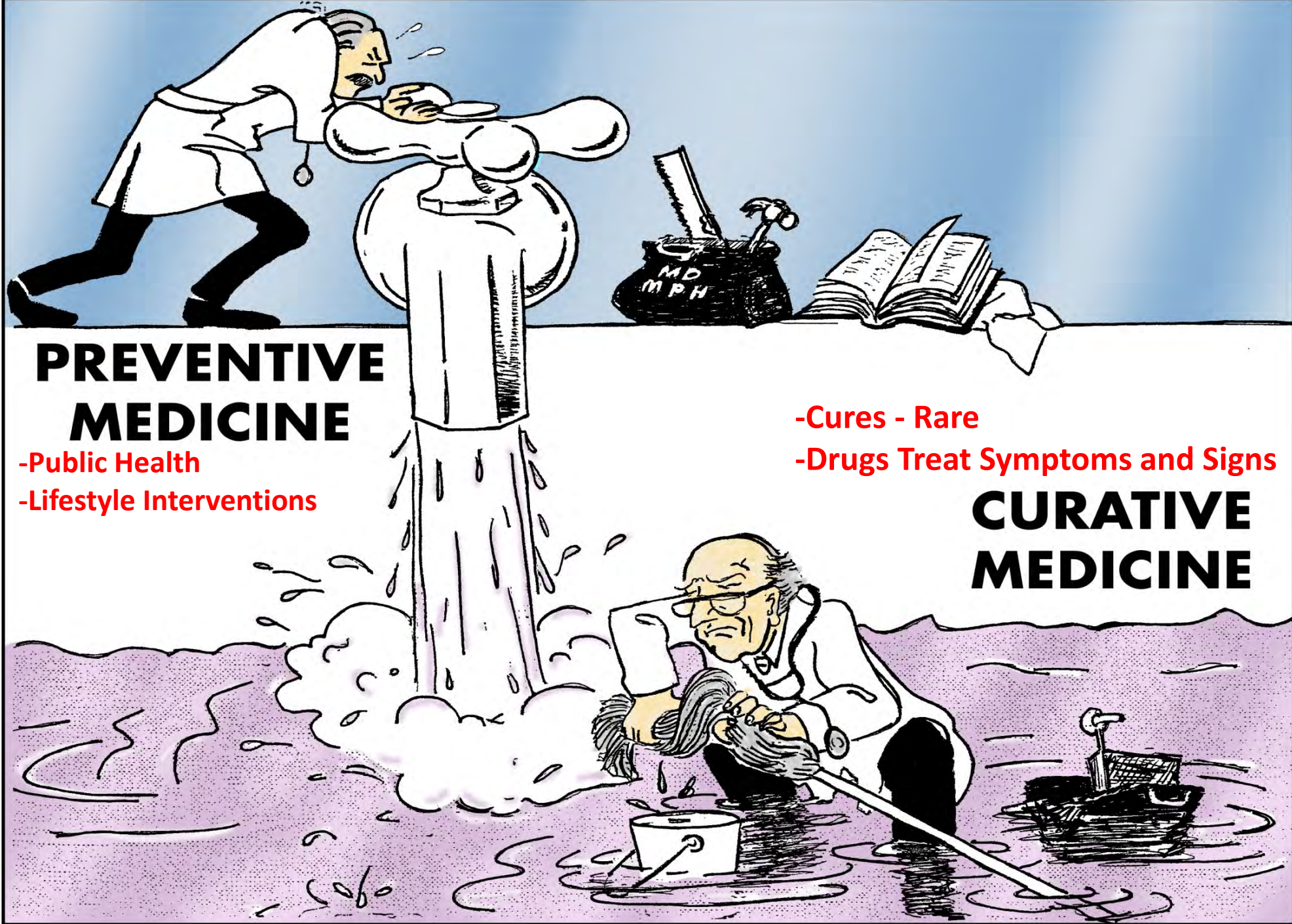
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October 16, 2018



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PREVENTIVE MEDICINE

- Public Health
- Lifestyle Interventions

- Cures - Rare
- Drugs Treat Symptoms and Signs

CURATIVE MEDICINE

Real People can adopt and sustain a whole-food plant-based diet -with medical guidance and support



Barbara

- 62- year-old AA woman
- Walks over 6 miles - 4 days/week.
- Ate only fish and chicken
- Hypertension x ~20 years
- Medications - Exforge (Valsartan and Amlodipine)
- Complained of joint pains
- On Examination – BP= 165/92 and obesity



Barbara

- High total cholesterol – High LDL
- Dx Diabetes – had prediabetes x ~ 15y
- Did not filled Metformin or statin prescriptions
- Read that statins caused diabetes?
- Wanted to treat disease “naturally” with a plant-based diet but not sure how.
- Stage of Change: Action

Medication Non-Compliance

- 75% patients non-compliant with treatment –2014 AMA study
- 2/3 of patients stop stains in 1st 6 months
- African Americans > 65 - average 5.7 prescription drugs.
- 35% skipped > 1 medications on purpose
- Only 8% forgot to take medications
- 2x as many older AA patients non-compliant.
- South - Highest non-adherence rates in the US



Barbara's Whole-Food Plant-Based Diet Results

	1/17/17	5/5/17	8/15/17	10/31/17	Home Log
Weight (pounds)	191	185	174	171	
Blood Pressure	165/92 on 2 drugs	131/75	122/79	123/72	117/62 NO Drugs
Cholesterol	233 mg	216 mg	179 mg		
LDL	141 mg	134 mg	98 mg		
HbA1c	6.5%	6.3%	6.2%	5.9%	
Ox-LDL		60 IU	34 IU	Better indicator of CVD risk	

James

- Came to clinic with Barbara
- Veteran with PTSD
- Retired/disability
- PCP and specialty care from the VA
- No exercise – left leg weakness and chronic pain
- Heavy meat eater –no plans to change.
- Stage of Change: Precontemplation



James – Multiple Medical Problems

- angina
- Asthma
- Chronic back, muscle and joint pain
- Diabetes
- GERD
- Obesity
- High cholesterol – on statins
- Hypertension - 4 medications
- Erectile dysfunction
- PTSD/Depression



James - Polypharmacy - 22 Meds

- Metformin
- Simvastatin
- Hydralazine
- Furosemide (Lasix)
- Diltiazem CD (diltiazem cd)
- Carvedilol (Coreg)
- Pantoprazole (Protonix)
- Tamsulosin (Flomax)
- sildenafil citrate (Revatio)
- Methocarbamol (Robaxin)
- Finasteride (Proscar)
- Mometasone Furoate (Asmanex)
- Gabapentin (Neurontin)
- Albuterol Sulfate Hfa Inhaler
- Oxycodone-APAP
- + more including psychotropic drugs for depression and PTSD from the VA



James's Results - 1 1/2 years later

- Barbara's influence – slow adoption of plant based diet.
- Lost 35 pounds
- No longer has diabetes
- Normal cholesterol – no statins
- Less chronic pain-s/p lumbar disc surgery
- More physically active
- Relapses and course corrections/support
 - cheese crackers

6 Current medications

Diltiazem

Furosemide

Carvedilol

Tamsulosin

Methocarbamol

Codeine/APHA

If a plant-based diet can dramatically improve health, why don't all physicians advise their patients about this?



Physicians and Plant-Based Nutrition

- Core beliefs about food – Carnism – cognitive dissonance
- Core beliefs about disease causation - cognitive dissonance
- Lack of medical education about plant-based diets
- Dietary guidelines – Food industry
- Treatment guidelines – Pharmaceutical industry
- Reimbursement – may change all of the above

Core Beliefs -Carnism/Veganism/Vegetarianism

- **Carnism** - core unconscious belief - most people
 - Natural, normal and necessary to kill and eat certain animals but not others.
 - Pigs and chickens but not dogs or swans.
- **Veganism** - humans should not kill or exploit animals for any reason. Considered odd/abnormal
- **Vegetarianism** – humans should not kill animals for food but can exploit for eggs, milk and cheese.



Cow – Delicious
Dog – Disgusting

Core medical beliefs about Disease Causation

- 1800s – doctors did not wash hands (First gloves used in 1895)
- Hospitals were filthy – “death houses”
- High maternal mortality -Puerperal Fever/Childbed Fever
- Genital tract infections→ septicemia→ death
- Babies delivered - unwashed bare hands - street clothes or with unwashed butcher’s aprons. Autopsies before deliveries
- Ignaz Semmelweis –Experiment – 1847 - wash hands with carbolic soap before deliveries – death rate dropped dramatically.

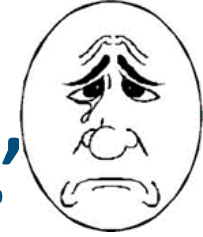


What Happened Next?



Handwashing - Ignored/Ridiculed/Rejected

Almost 60 years



- Handwashing - “too radical and impractical.”
- Letters to Obstetricians - “irresponsible murders.”
- **Why?** Physicians - oath “to do no harm” – why reject information that could save lives?
- Core belief of disease causation in 1800s - imbalance of 4 humors – Blood, phlegm, black bile, and yellow bile.
 - Each disease - unique imbalance
 - Tx – bloodletting and leeches
- Cleanliness/Handwashing did not make sense.



History Repeating – Genes vs Plant Based Diet

- Core beliefs of modern/Integrative medicine - Genes cause disease - there is/or will be a pill, portion, herb or procedure to “cure” every health problem
- Detailed family history – rarely a nutritional history
- What you eat/how you live - does not matter
- Plant-based nutrition does not make sense



Cognitive Dissonance -

- Mental conflict/discomfort when new information conflicts with unconscious core beliefs.
- New information - “ridiculous” “radical” “fringe” “extreme” “impractical.”
- Defensive – stronger opposition.
- Most just ignore the new information.

Modern Medicine and Federal Guidelines reject/ignore the evidence that chronic diseases can be prevented/reversed by plant-based diet.

US Dietary Guidelines 2015-2020

1. Healthy Patterns

- Variety of vegetables(2-3 cups/day)
- Fruits (1.5-2 cups/day)
- Grains \geq 50% whole grains
- Fat-free or low-fat dairy
- Variety of protein foods
- Oils

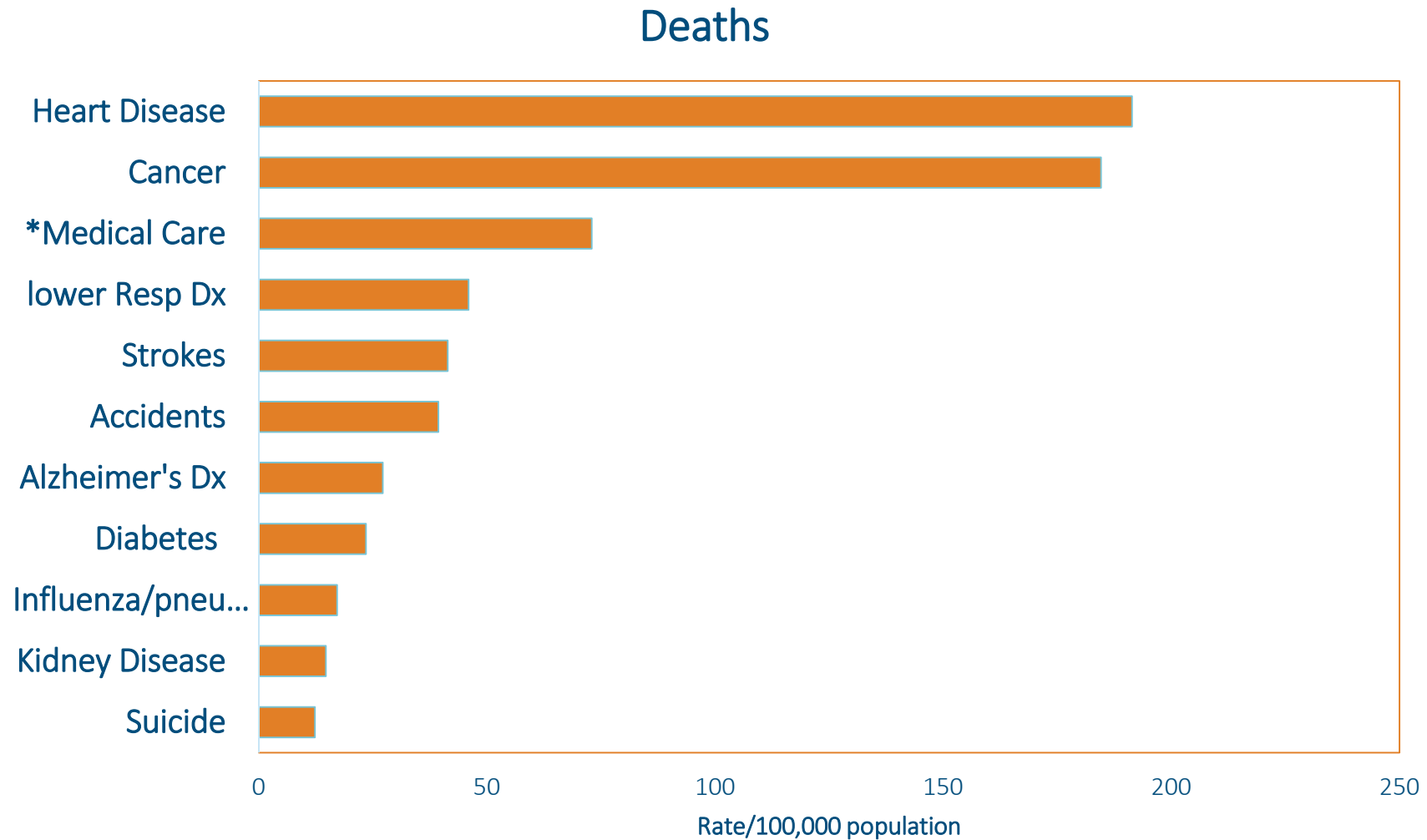
2. Healthy Pattern Limits

- <10% of calories per day from added sugar
- <10% of calories per day from saturated fat
- <2,300 mg/day sodium
- Alcohol in moderation
(1 drink/day –women
2 drinks/day – men)

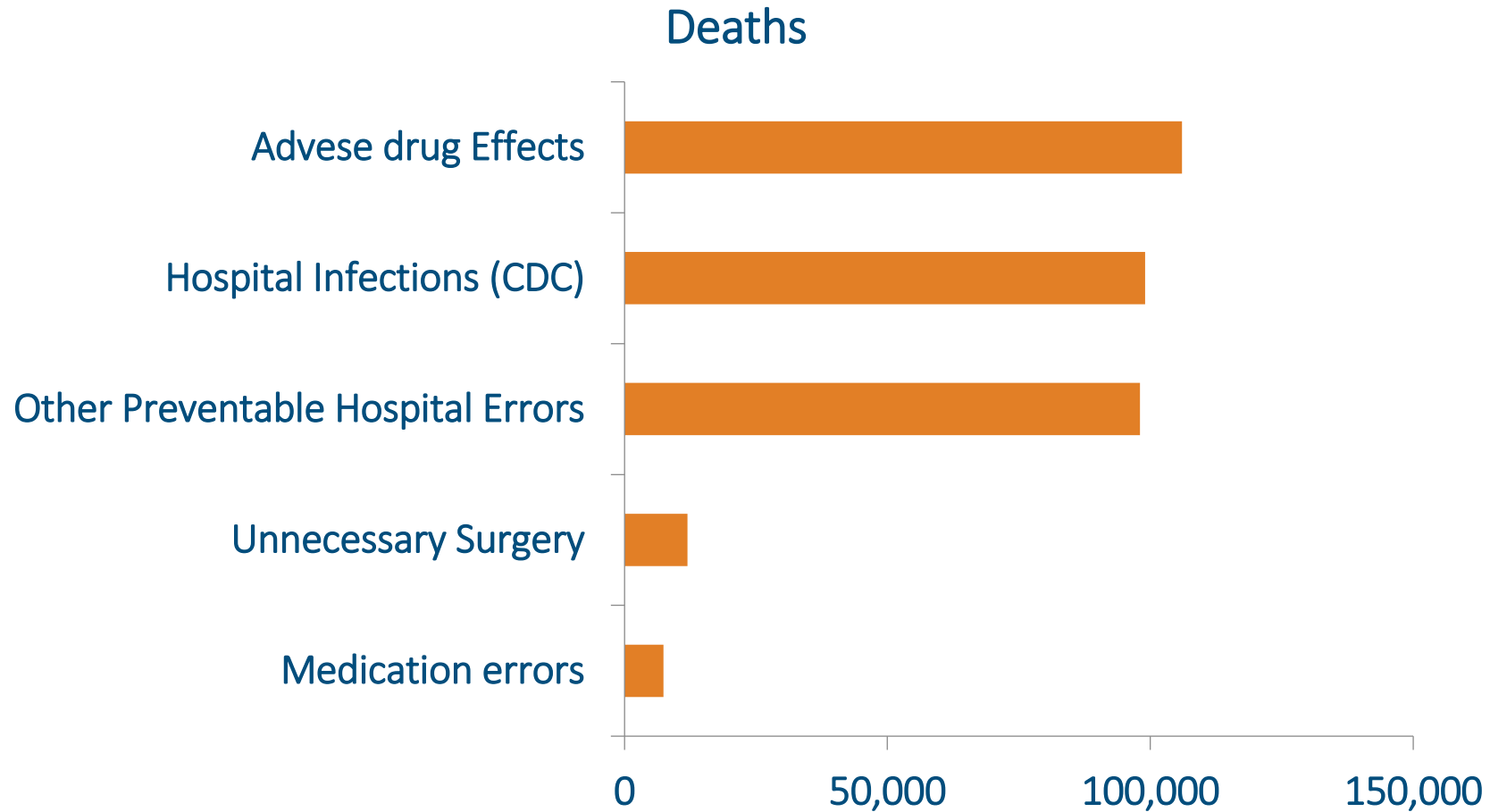
That's it, nothing about meat. The limit on cholesterol was removed after pressure from the egg industry in 2015.

Underlying Causes Of Chronic Diseases – Why Plant Based Diets Work

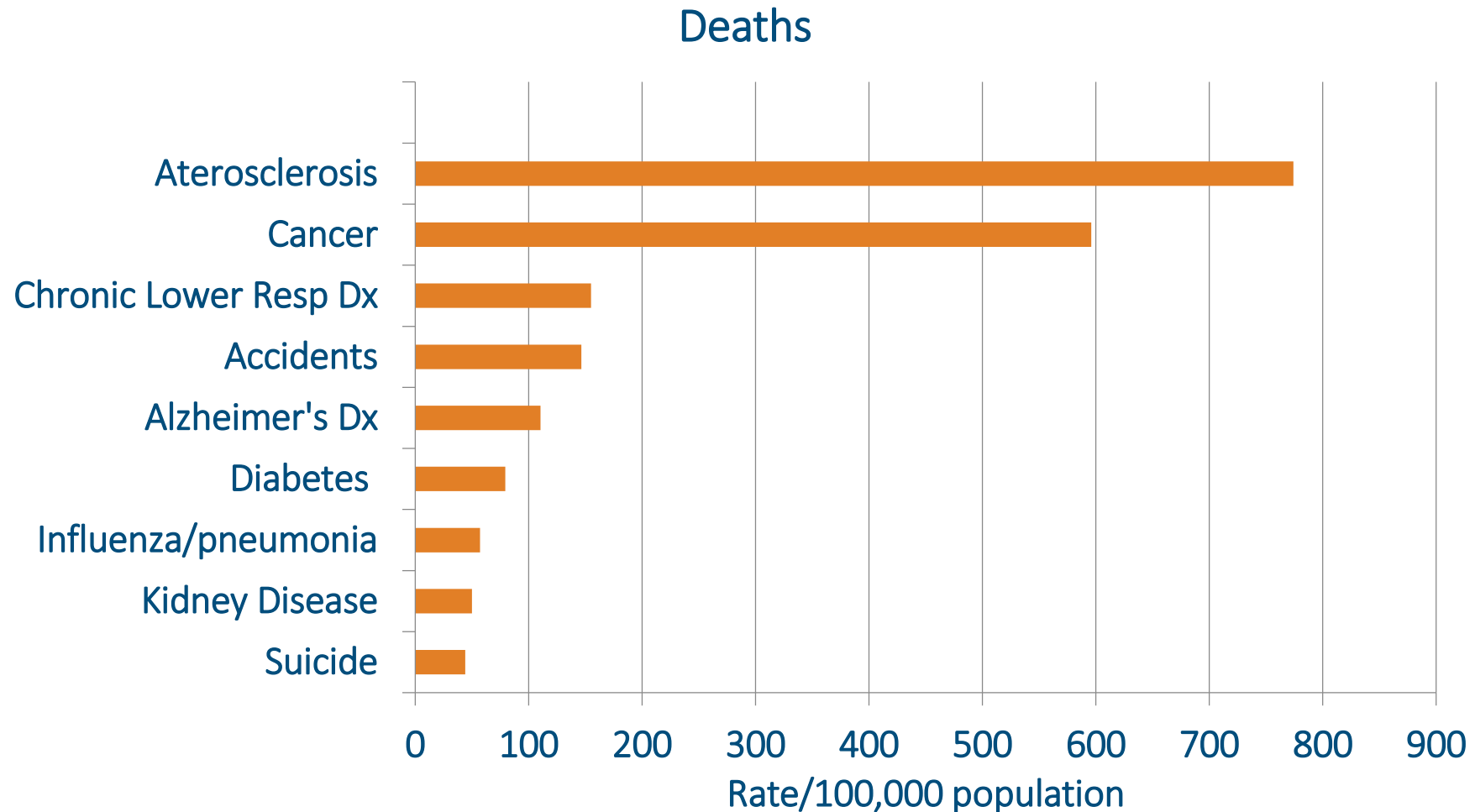
Causes of Death in US (2016)



Medical Care (NIH/CDC 2006)

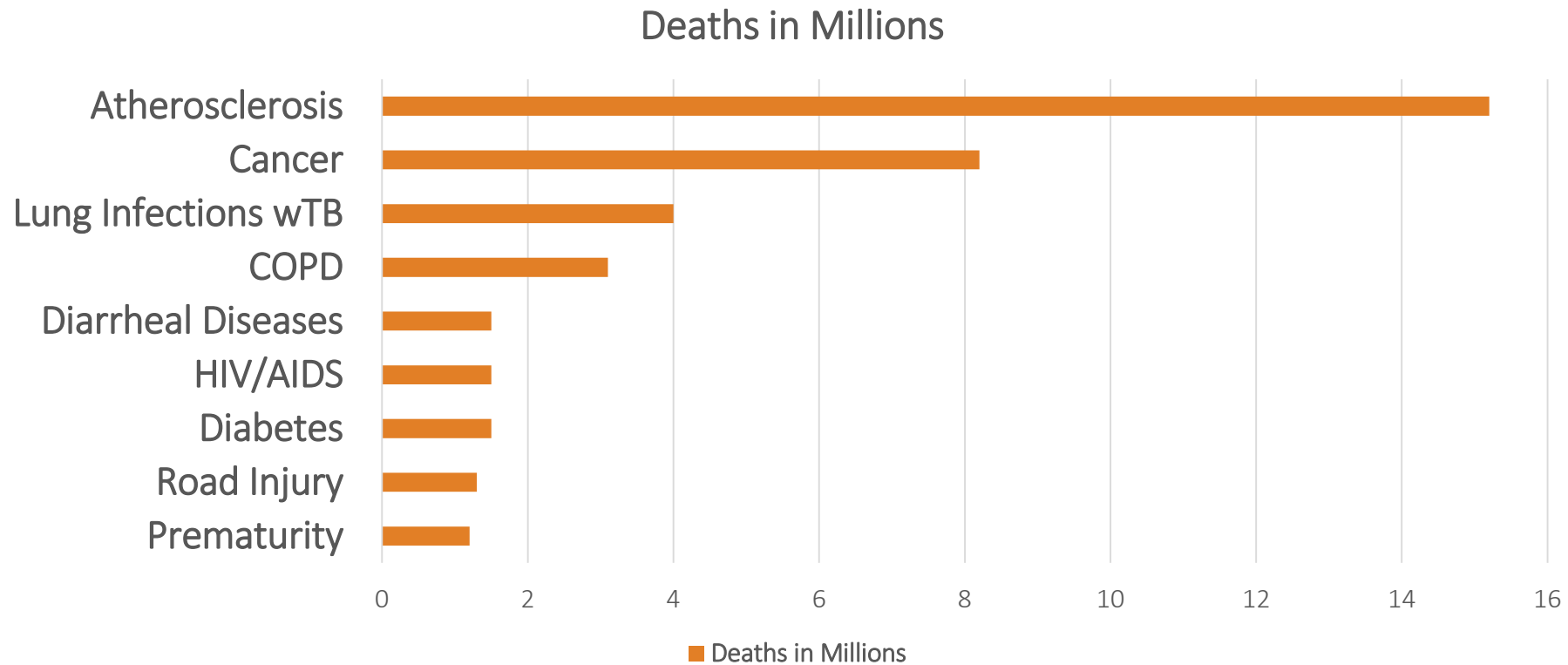


Causes of Death (CDC, 2016) If Heart Dx + Strokes



Death Rates Worldwide (WHO)

Combining Ischemic Heart Disease, Hypertensive Heart Disease and Strokes

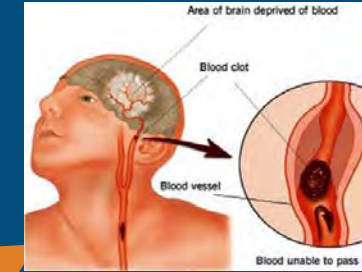
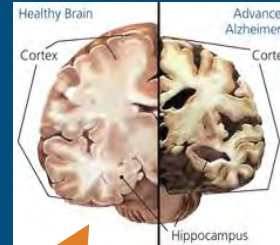


Atherosclerosis

AKA Clogged Arteries

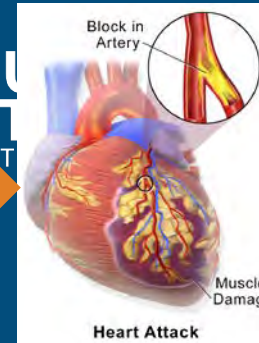
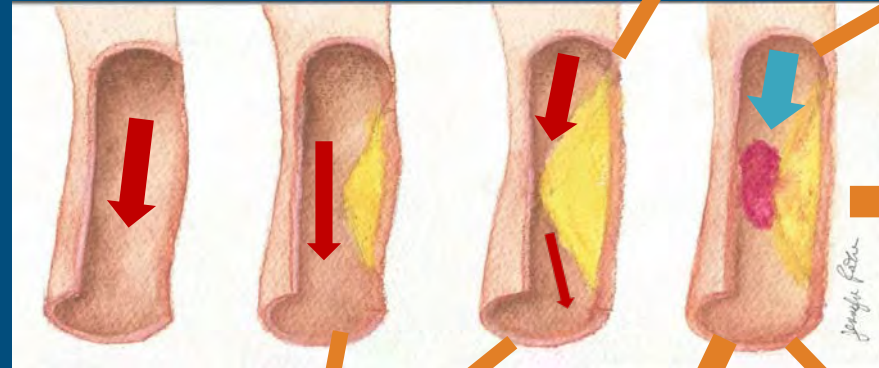
-Fatigue and
Lack of energy
-Aneurysms –
brain/aorta

Vascular
Dementia/Brain
shrinkage

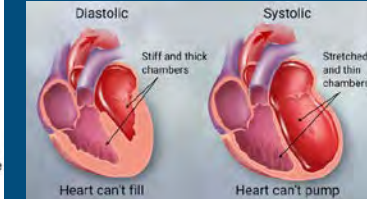


Strokes/TIAs

Normal
artery



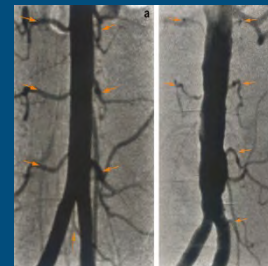
Heart
Attacks/Failure



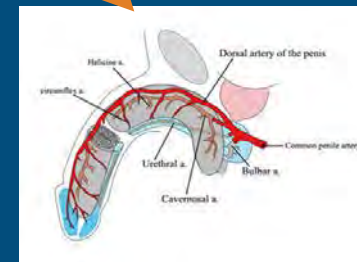
High blood
pressure



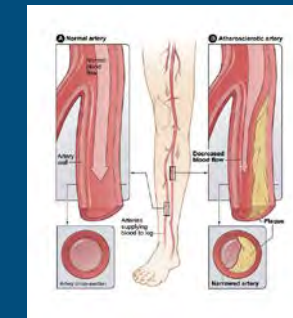
Low blood flow to kidneys
→ fluid retention → higher
BP



Low back pain

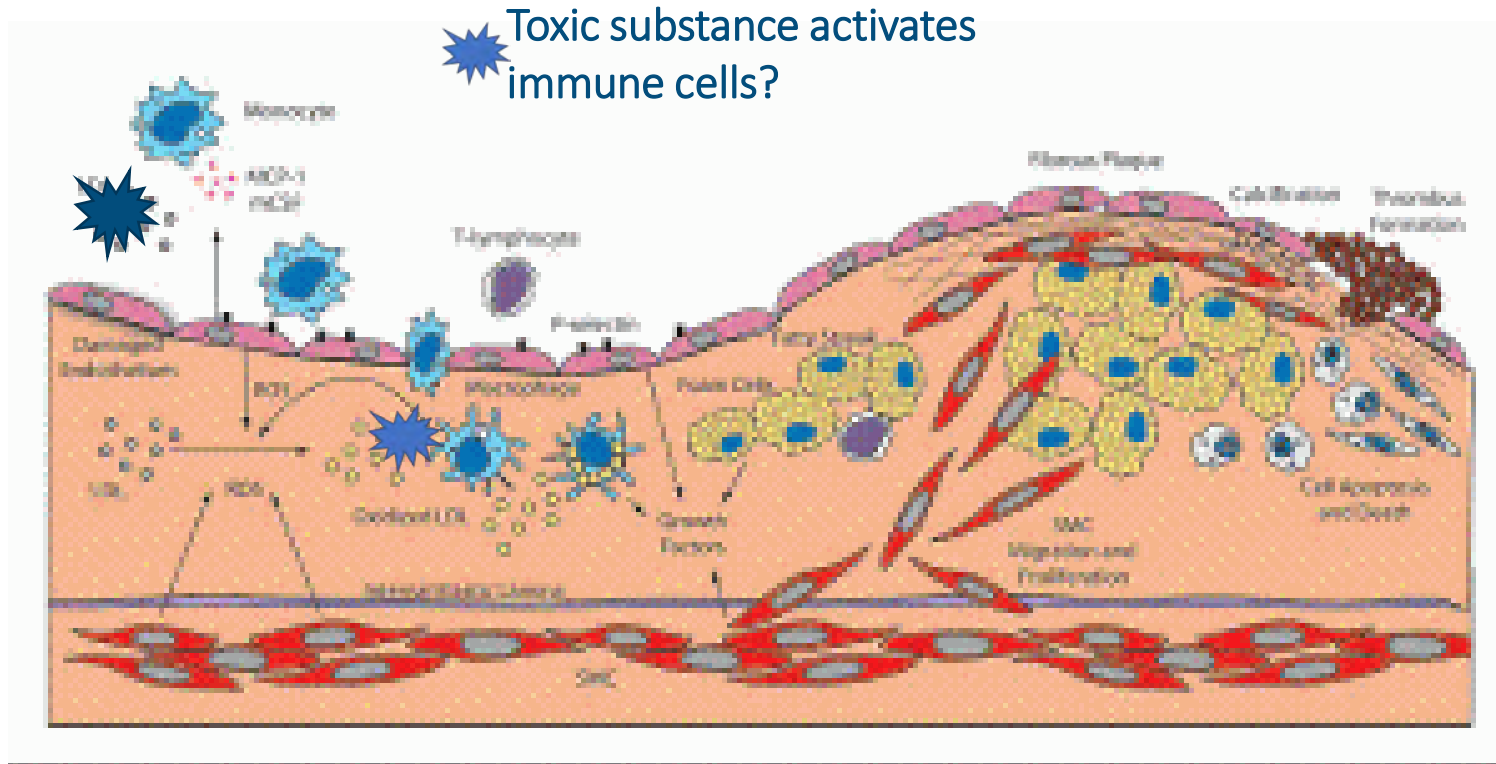


Erectile
Dysfunction



Peripheral Artery
Disease/neuropathy?

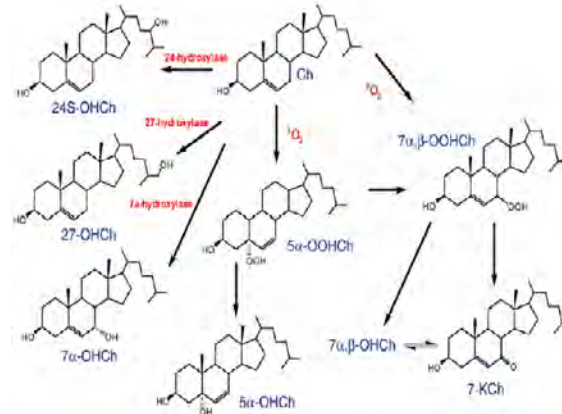
Stages of Atherosclerosis



If no foam cells – no atherosclerosis – no heart attacks or strokes
What is the toxic substance that activates monocytes to become macrophages and foam cells?

Cholesterol Oxidation Products in Food

- Exposure to air
- Heating/cooking
- Digestion
- Irradiation
- Processing



- Oxidization of protein.
- Cooking speeds up oxidation



Raw eggs: minimal
Cooked eggs: 27 – 400 µg/g lipids



Fresh raw milk: Minimal
Skimmed powdered milk: 0.1
-10 µg/g lipids



Raw chicken breasts: 2.88 to 4.35 µg/g lipid
Roasted/grilled: 92.35 and 88.60 µg/g lipid



Toxic Substance
259 µg/g lipids



Canned Tuna in brine
40 - 350 - 1600 µg/g lipids
Toxic substance

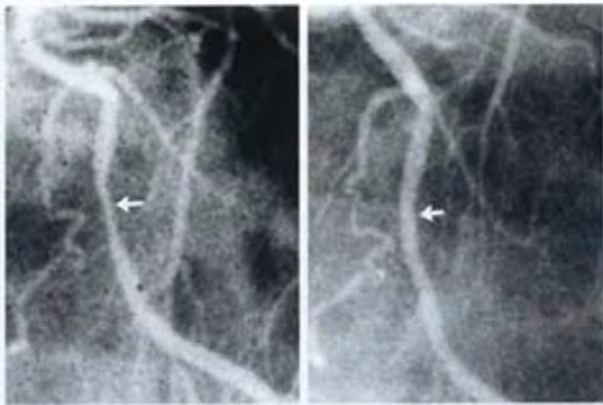
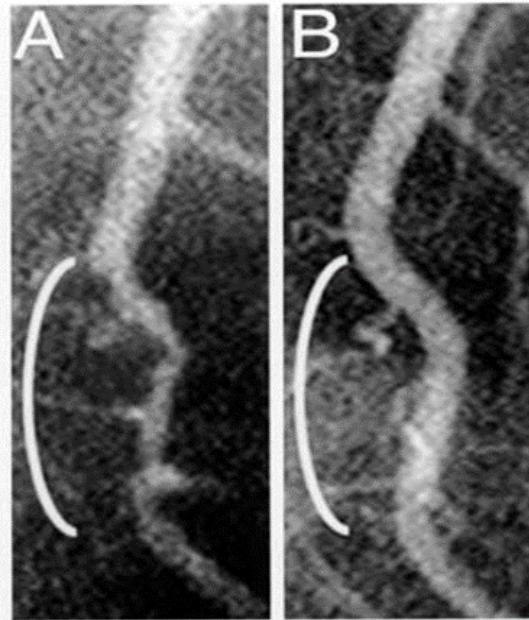


Fresh meat: minimal
Cooked/processed meat: 180-
1900 µg/g

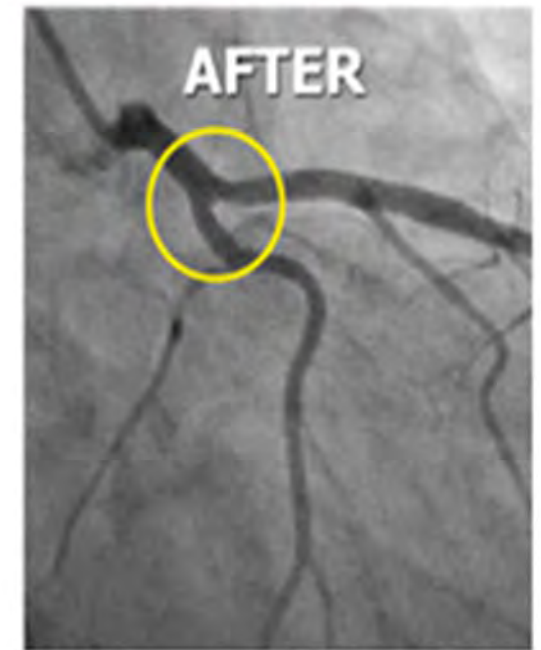
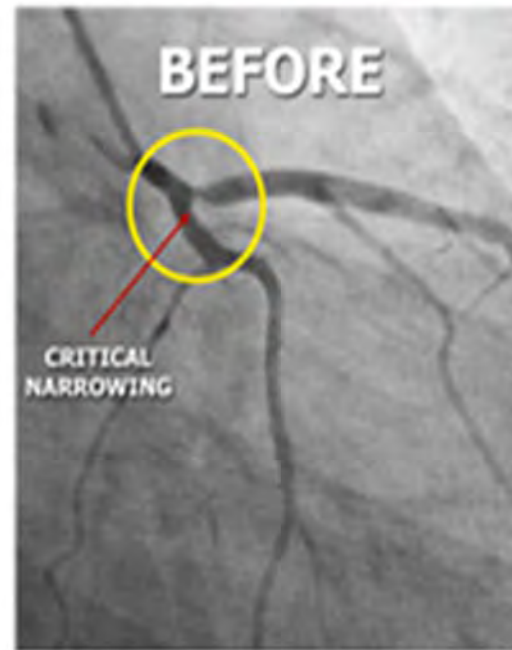
- Processed meat is a group 1 definite carcinogen.
- Higher risk of Type 2 diabetes

Plant-Plant-based Diet Reverses Atherosclerosis

Coronary angiograms before (left) and after (right) 32 months of a plant-based diet. From Prevent and Reverse Cardiovascular Disease by Dr. Caldwell Esselstyn



Reverse Atherosclerosis/Unclog Arteries
5 Months on a Plant-Based Diet



Angiograms before and after 5 months on the Montgomery Heart Wellness Intervention Program.
Courtesy of Baxter Montgomery, MD, FACC, Director, Montgomery Heart and Wellness and the AM Institute of Medical Education and Research

From Cardiologist Dr. Baxter Montgomery

Plant -Based Nutrition

Strong Scientific Evidence

- <https://www.youtube.com/watch?v=Y15yI5LLINY>
- Prevent and Reverse CVD
- Prevent and Reverse Type 2 Diabetes
- Prevent and Reverse early stage cancers
- Prevent and Reverse COPD
- Prevent Alzheimer's Disease
- Prevent and Reverse Autoimmune disease
- Eliminate health disparities in CVD and DM
- Eliminates Exposure to Cholesterol Oxidation Products

Whole Food Plant-Based Diet Recommendation

- 5 servings of fruit
- 5 servings of vegetables ($\frac{1}{2}$ cup cooked)
- 2-3 servings of beans/legumes – ($\frac{1}{2}$ cup)
- 2-3 servings of whole grains
- 1 serving of nuts - $\frac{1}{4}$ cup
- 1-2 serving seeds (flaxseeds) 1- tbps
- Water –at least 8 cups



What About Protein?

Which has more protein?

100 calories of broccoli or 100 calories of Beef?



100 calories broccoli v 100 calories beef

3.25 cups



10.4 ounces/295 grams

Protein: 8.32 grams

1.2 ounces/34.5 grams

Protein: 5.98 grams

USDA Nutrient Database

Vitamin B12



- Made by bacteria in soil and colon – not animals
- Animals eat soil bacteria → make B12 → animal tissues
- Factory farmed animals – No soil - No B12 – fed B12 supplements
- 39% of meat eaters may be deficient
- Gastric bypass surgery - most common cause of deficiency
- Deficiency rare but possible on plant based diet
- Only supplement recommended -500 mcg daily

The beginning



Questions???

Reforming Health Care through Chronic Disease Reversal

Ken Beckman, ASA, ACAS, MAAA, CFA

October 16, 2018



Why is Whole Food Plant-Based Nutrition not frequently used as treatment?

Why is Whole Food Plant-Based Nutrition not frequently used as treatment?

Non Sequitur by Wiley Miller



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November 19, 2014 from www.gocomics.com

<http://www.gocomics.com/nonsequitur/2014/11/19>

Why is Whole Food Plant-Based Nutrition not frequently used as treatment?

- (1) Fact that most chronic conditions can be reversed is not widely known
- (2) Lack of monetary incentives for providers to reverse chronic disease

What can Health Care Payers
(insurers, self-insured groups, Medicare, Medicaid)
do to encourage lifestyle medicine treatment focused on
Whole Food Plant-Based Nutrition?

Actions That All Health Care Payers Can Implement

- (1) Deliver a direct message to all insured members that chronic disease can be reversed

Actions That All Health Care Payers Can Implement

(1) Deliver a direct message to all insured members that chronic disease can be reversed

Example: Medicare Supplement Insurer

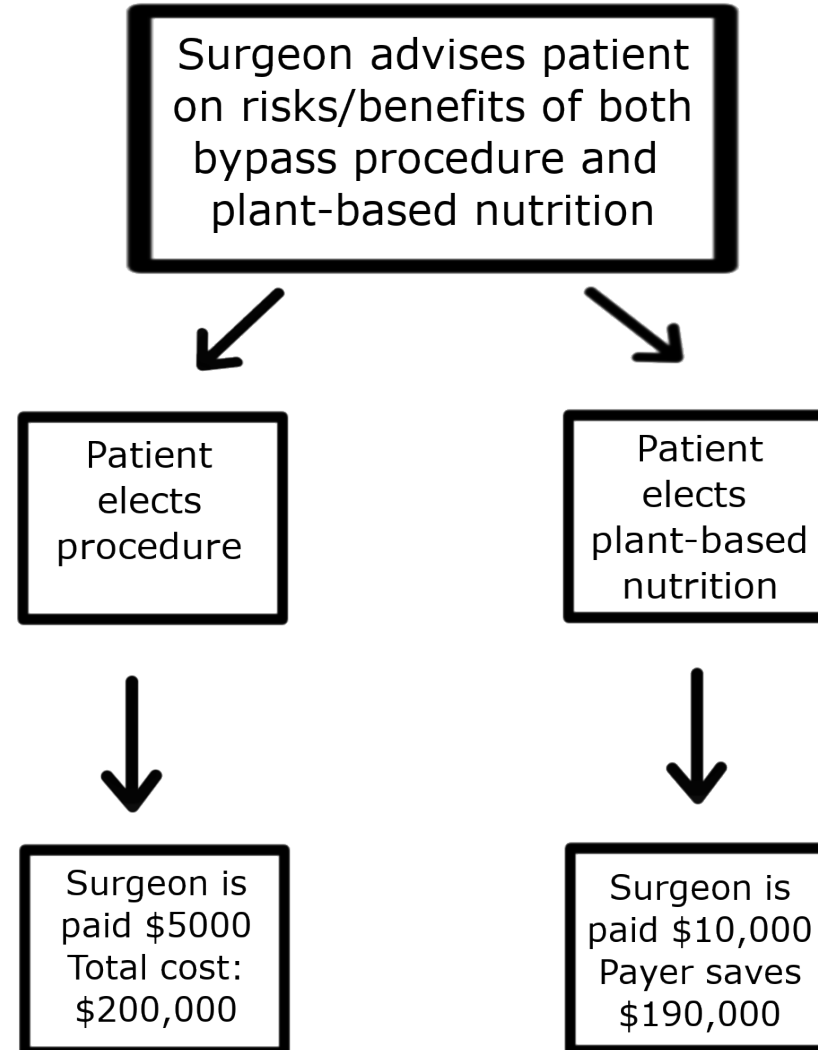
- Sent introductory letter: ***“Did you know that diabetes, heart disease, high blood pressure, obesity, arthritis, etc. can be reversed without drugs/surgery and no negative side effects?”***
- Sent documentary film (*Forks Over Knives*) providing the scientific evidence and compelling personal stories of disease reversal
- Provided other materials: book, websites, recipes
- Not prescribing medicine – simply providing (specific, actionable) information and encouraging discussion with health care providers
- Policyholder response / reaction – extremely positive and appreciative
- Claims experience

Actions That All Health Care Payers Can Implement

- (2) Require patients be advised of plant-based treatment option before approving payment for non-emergency bypass/stents, bariatric surgery, and PCSK9 drugs

Actions That All Health Care Payers Can Implement

Example: Bypass surgery



Actions That All Health Care Payers Can Implement

(3) Offer financial incentives for physicians based on the value patients receive (improvement in health)

What about Current Value Based Initiatives?

Healthcare Effectiveness Data and Information Set (HEDIS) – used by 90% of health plans to “measure performance on important dimensions of care and service”

CMS uses HEDIS to improve “care quality” and assist in “making patients healthier”¹

Examples of HEDIS measures ² :	Normal Readings:
<i>Controlling High Blood Pressure:</i> % of Hypertensive patients with BP < 140/90	< 120/80
<i>Comprehensive Diabetes Care, HbA1c Poor Control:</i> % of Diabetics with A1c>9% or failed to have A1c recorded	<7%

These measures do not provide incentives to reverse chronic health conditions.

¹ <http://www.ncqa.org/hedis-quality-measurement/what-is-hedis>; <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/MACRA-MIPS-and-APMs.html>

² <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityMeasures/Downloads/ACO-and-PCMH-Primary-Care-Measures.pdf>; http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/KnowYourNumbers/Understanding-Blood-Pressure-Readings_UCM_301764_Article.jsp#.WUI2H2jyuUk; <http://www.diabetes.org/living-with-diabetes/treatment-and-care/blood-glucose-control/a1c/>

How to Develop Financial Incentives Based On: Patient Value = Improvement in Health

- (1) Choose Objective Clinical Measures that are predictive of future costs
 - BMI (Body Mass Index)
 - Cholesterol
 - Blood Pressure
 - HbA1c (Diabetes indicator)
 - CRP (C-Reactive Protein inflammation marker)
 - Endothelial function (vascular health indicator)
- (2) Relate Measures to Claim Costs
(e.g. 1% change in A1c = \$1000 of claim costs)
- (3) Pay a portion of expected cost reduction to physicians based on actual patient results

Actuarial Patient Value Model:

Financial Incentives Based on Improvement in Patient Health

	Treatment Year				
	1	2	3	4	5+
Diabetic Patient with HbA1c of:	9.0	6.5	6.5	6.5	6.5
Expected Total Health Spending:	\$15,000	\$7,500	\$7,500	\$7,500	\$7,500
PCP Share of Health Spending:	\$1,500	\$750	\$750	\$750	\$750
Incentive Payment to PCP:		\$2,000	\$2,000	\$2,000	\$2,000
Net Savings Relative to Year 1:		\$5,500	\$5,500	\$5,500	\$5,500

Why Do Actuaries Need to Get Involved?

- Evidence & research supports plant-based nutrition, but financial incentive is missing
- Experts in developing sustainable financial security systems
- Key role with payers—offer payers an evidence-based solution to facilitate large scale implementation

Conclusion

- Current health care system (not just individual market) is unsustainable (18% of U.S. GDP)
- 85%+ of health care costs due to chronic conditions
- WFPB nutrition can reverse a wide range of chronic conditions without negative side effects
- No downside risk for health care payers to make insured members aware of WFPB nutrition
- Opportunity for actuaries to develop incentives resulting in a sustainable health care system