

Reforming Health Care with Chronic Disease Reversal and the role of Actuaries for Sustainable Health Care

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**Actuaries Club of Boston
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Chronic Disease

Current Situation

- Chronic diseases kill 40 million people annually worldwide - 70% of all deaths
- **More than 85% of U.S. health care costs attributable to chronic disease**
- Leading metabolic risk factors for chronic disease deaths are:
 - (1) high blood pressure (responsible for 19% of deaths)
 - (2) overweight and obesity (obesity has tripled since 1975)
 - (3) raised blood glucose (diabetics use more than 2X the health care resources than non-diabetics, diabetes is up 600% in last 50 years)

Current Strategy

- Focus is on managing conditions through medication compliance/procedures/preventative tests
- Minimal attention given to addressing the underlying cause resulting in reversal or cure

What if...

A single, low-cost, widely available prescription without any negative side effects could prevent, treat and in many cases reverse all of the these:

Cardiovascular (Heart) Disease
Diabetes
Obesity / Overweight
High Blood Pressure
Osteoarthritis / Rheumatoid Arthritis
Erectile Dysfunction
Multiple Sclerosis
Chronic Kidney Disease

Cancer (some forms)
Constipation/IBS
Acid Reflux/GERD
Dementia/Alzheimer's
Asthma
Kidney Stones
Crohn's / Ulcerative Colitis
Acne

The Prescription:

Whole Food Plant-Based Nutrition

Include:

Whole Grains
Legumes (Beans, Peas, Lentils)
Vegetables
Fruits

Exclude:

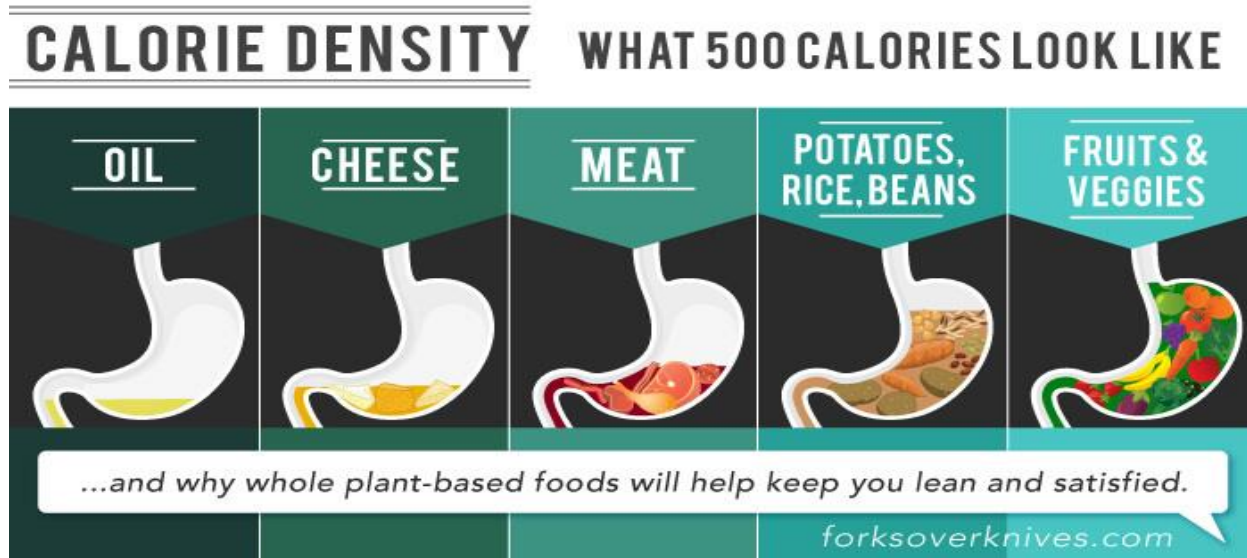
Meat (beef, chicken, pork, fish, etc.)
Dairy products (milk, cheese, yogurt)
Eggs
Oils (olive, safflower, canola, coconut, etc.)

- Choose whole foods and avoid refined and processed foods
(e.g. whole grain bread instead of white bread, olives instead of olive oil)
- No calorie counting required--eat until satisfied and eat when hungry

"Just eat lots of plant foods; your body will do the math for you." – T. Colin Campbell

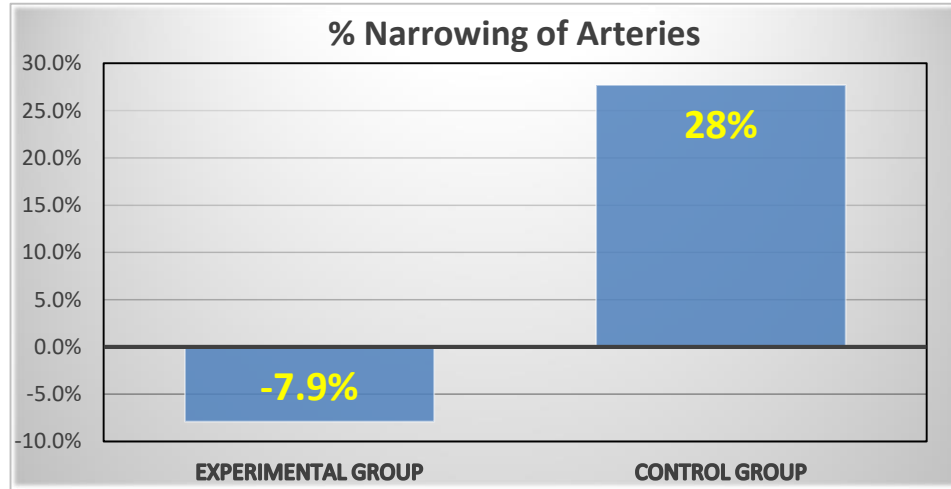
Why does Whole Food Plant-Based Nutrition work?

How is it sustainable?



Dean Ornish, M.D.

Coronary Artery Disease - 5 year study

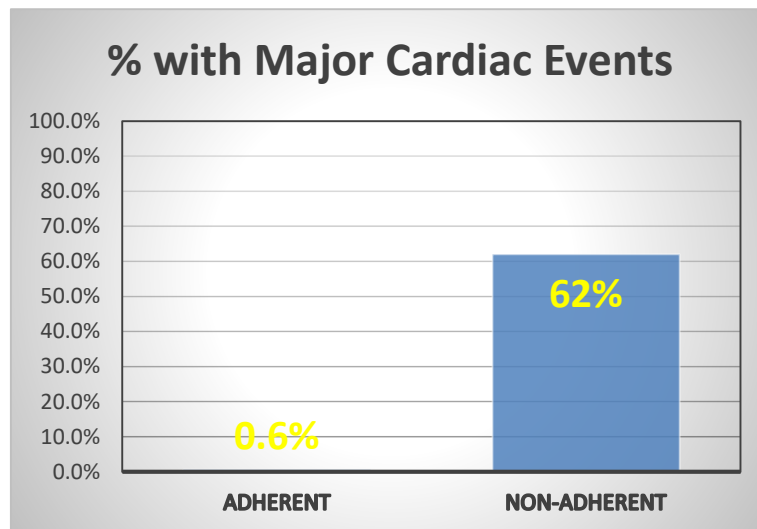
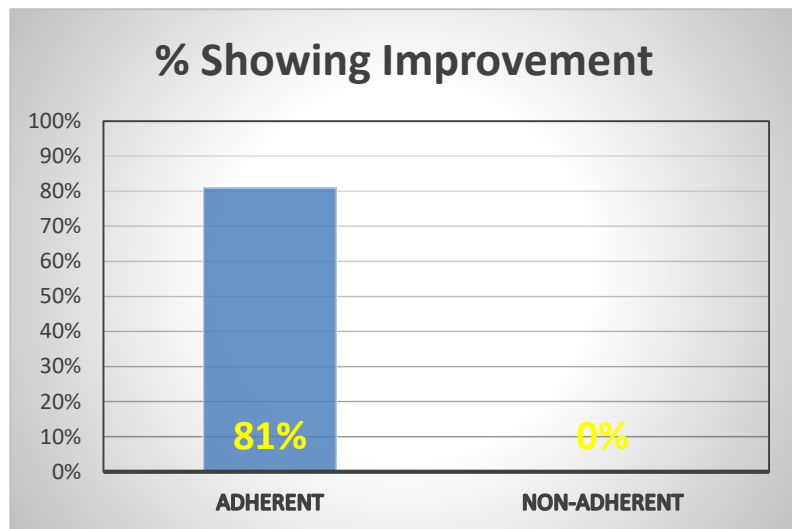


Ornish lifestyle medicine program approved by U.S. Medicare in 2010 as a covered service for heart patients as it showed:

- (1) "significant regression" or reversal of coronary atherosclerosis
- (2) reduced the need for bypass or angioplasty
- (3) significant reduction in: LDL cholesterol, triglycerides, body mass index, blood pressure and required medications.

Caldwell B. Esselstyn Jr., M.D.

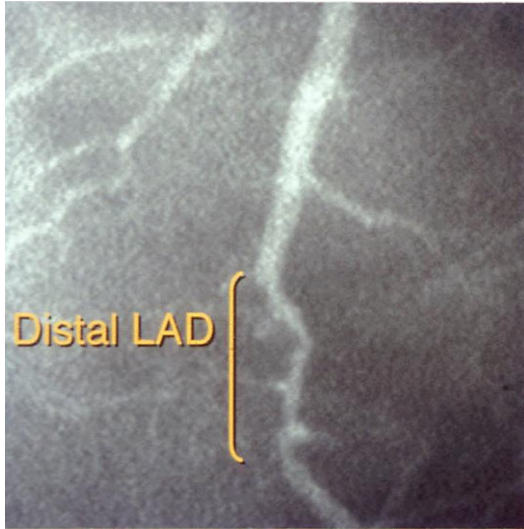
Cardiovascular (Heart) Disease – study averaged 3.7 years



Reversal of Coronary Artery Disease

Caldwell B. Esselstyn Jr., M.D.

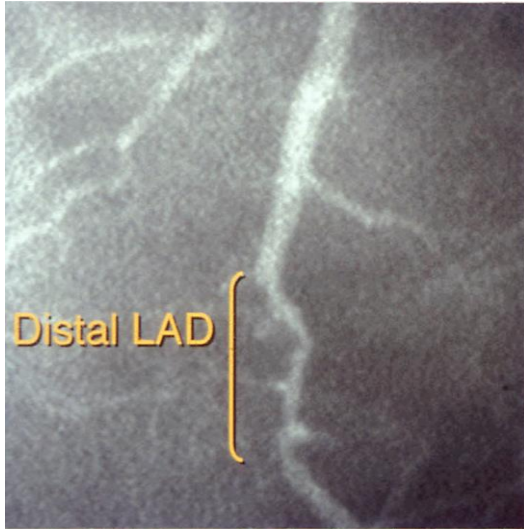
27 November 1996



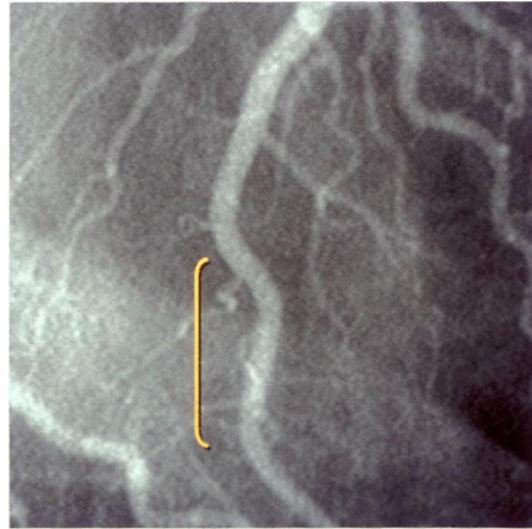
Reversal of Coronary Artery Disease

Caldwell B. Esselstyn Jr., M.D.

27 November 1996



22 July 1999



Dean Ornish, M.D.

Early Stage Prostate Cancer

	Experimental Group	Control Group
PSA (Year 1)	-4%	6%
Reduced growth of cancer cells (Year 1)	70%	9%
Required traditional treatments (Year 2)	5%	27%

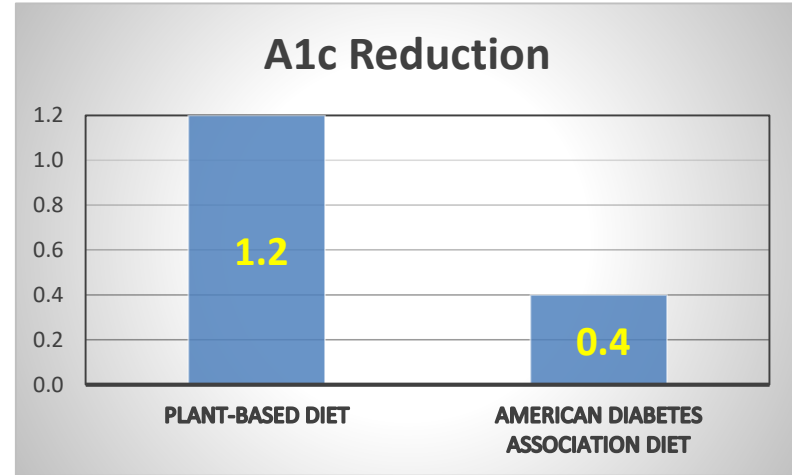
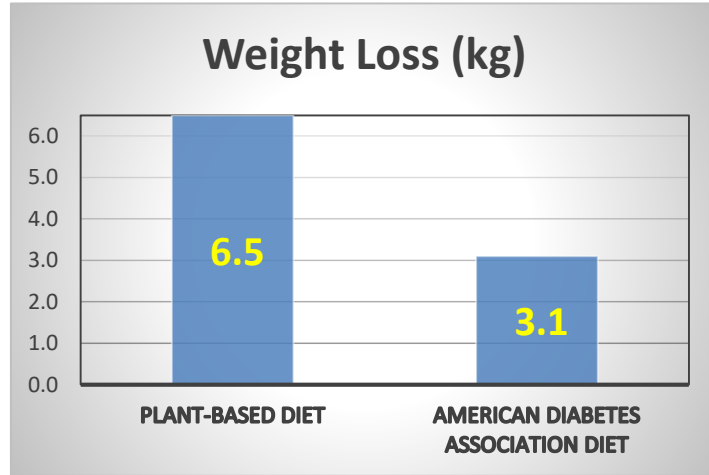
John McDougall, M.D.

7 day intensive program – 1,600 patients

Cholesterol	-29%
Blood Pressure	-18%
Triglycerides	-48%
Reduction in Blood Pressure Medications	86%
Reduction in Diabetes Medications	90%

Neal Barnard, M.D.

Diabetes - Randomized Control Trial – 22 week study

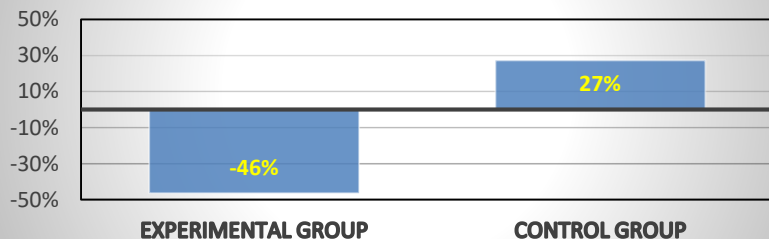


- **Satisfaction/compliance higher with plant-based diet -- no limits on calories**
- **Plant-based diet easier to understand compared to one that limited portion sizes**

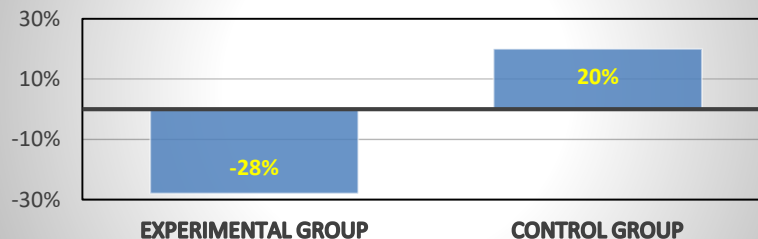
Rheumatoid Arthritis

Randomized Control Trial with 13 months of follow up

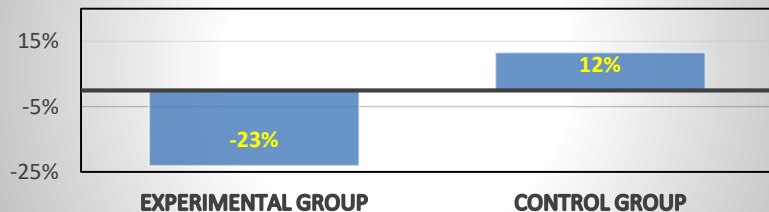
Duration of morning stiffness



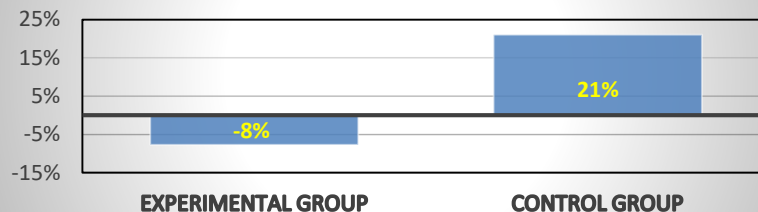
C-Reactive Protein (inflammation)



Tender Joints



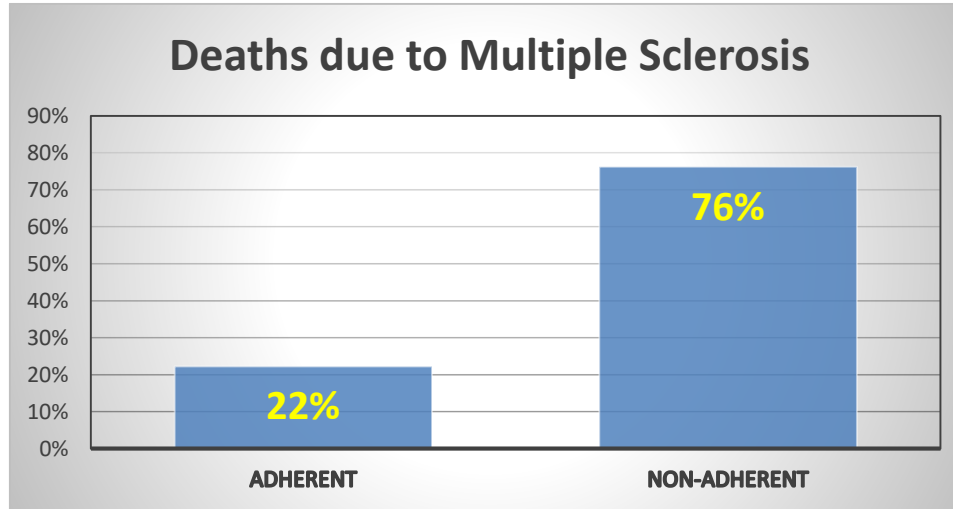
Swollen Joints



Experimental group fasted for 7-10 days, then followed a completely plant-based diet for 3.5 months with the optional addition of dairy products thereafter. Control group followed their usual diet.

Roy Swank, M.D.

Patients with diagnosed Multiple Sclerosis – 34 years of follow up



Prescribed nutrition was not completely plant-based, but very low in saturated fat (<20g/day)

Why should health care providers prescribe Whole Food Plant-Based Nutrition?

Treatment	Effectiveness	Side Effects	Cost
Bypass surgery for heart disease	15%-50% failure rate at 5 years depending on type	20% complication rate 5% stroke 2% death	\$150,000
High cholesterol (statin) drugs	1.2% reduced risk of death 2.6% reduced risk of heart attack 0.8% reduced risk of stroke (for those with existing heart disease) [based on absolute risk reduction]	10% experience muscle damage 2% develop diabetes Common: diarrhea, muscle/joint pain, upset stomach. In rare cases: liver dysfunction	\$20/month for life (generic)
Diabetes drugs	10% avoid diabetic complications (heart attack, blindness, kidney disease, amputation) 5% avoid diabetes-related death [based on absolute risk reduction]	2%-12% experience diarrhea, nausea, vomiting, upset stomach. In rare cases: lactic acidosis	\$10/month for life (generic)
Whole food plant-based nutrition	See previous slides	More energy, less need for doctor visits and medications	Free (everyone has to eat)

Adherence rates vary widely, but some drug trials have rates <50% and some plant-based nutrition trials have rates >90%

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

(1) Concept of chronic condition reversal 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 based 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

Example: Insurance Company

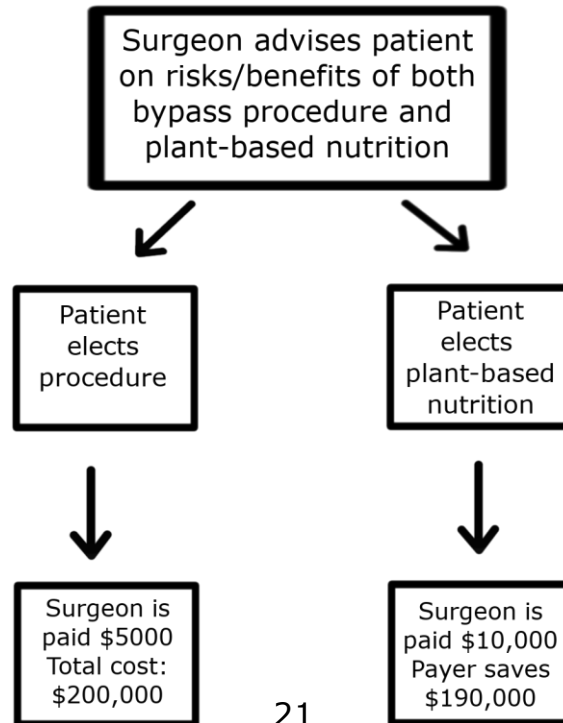
- Sent introductory letter: *Did you know that diabetes, heart disease, high blood pressure, obesity, arthritis, etc. can be reversed without drugs/surgery and no negative side effects?"*
- Sent documentary film (*Forks Over Knives*) providing the scientific evidence and compelling personal stories of chronic 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

Actions That All Health Care Payers Can Implement

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

- (1) Deliver a direct message to all insured members that chronic disease can be reversed**
- (2) Require patients be advised of plant-based treatment option before approving payment for non-emergency bypass/stents, bariatric surgery, and PCSK9 drugs**
- (3) Offer financial incentives for health care providers based on the value patients receive (improvement in health)**

What about current Quality Measurement Systems / Value Based Initiatives?

Example: CMS 5-Star Rating System

Patient of Dr. Wayne Dysinger	Total cholesterol	Triglycerides
Baseline Values	226	132
After 21 days of Lifestyle Medicine (no statin drugs)	171	75

Rather than an A grade, Dr. Dysinger received a C grade for medication compliance.

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

(1) Use Change in Objective Clinical Measures

- **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 Expected Claim Costs (e.g. 1% change in A1c = \$1000 of claim cost)

(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**

Actuaries for Sustainable Health Care



Mission Statement:

Actuaries for Sustainable Health Care is an international association of actuaries dedicated to achieving long-term sustainability of health care financing systems through the use of whole food plant-based nutrition. Our mission is to share with our actuarial colleagues and others responsible for health care financing systems the large body of scientific, clinical, and historical evidence showing whole food plant-based nutrition has the ability to not only prevent, but reverse many of the most common and costly chronic (noncommunicable) conditions which are currently consuming an increasing and unsustainable share of government, employer, insurer and individual budgets.

Current Membership: Actuaries from 14 countries; non-actuaries can subscribe to mailing list
Founded: 2017

Website: actuariesforsustainablehealthcare.org

Conclusion

- **Current health care system is unsustainable (18% of U.S. GDP)**
- **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**

Additional Resources



Actuaries for Sustainable Health Care
actuariesforsustainablehealthcare.org



Plantrician Project
plantricianproject.org



American College of Lifestyle Medicine
Lifestylemedicine.org



Lifestyle Medicine Economic Research Consortium
LMeconomicresearch.org

Sources by Slide Number

- (3) Thomas M. Campbell and T. Colin Campbell. "The Breadth of Evidence Favoring a Whole Foods, Plant-based Diet: Part I Metabolic Diseases and Diseases of Aging". *Primary Care Reports* 18(2012): 13-23.; Thomas M. Campbell and T. Colin Campbell. "The Breadth of Evidence Favoring a Whole Foods, Plant-based Diet: Part II Malignancy and Inflammatory Diseases". *Primary Care Reports* 18(2012): 25-35.
- (4) Quote is from: T. Colin Campbell, *Whole: Rethinking the Science of Nutrition*, (Dallas: BenBella Books, Inc., 2013), 11.
- (5) www.forksoverknives.com
- (6) Dean Ornish et al., Intensive Lifestyle Changes for Reversal of Coronary Heart Disease, *JAMA* 280 (16 Dec 1998):2001-2007. K. Lance Gould, Dean Ornish et al., "Changes in Myocardial Perfusion Abnormalities by Positron Emission Tomography After Long-term, Intense Risk Factor Modification," *JAMA* 274 (September 20, 1995): 894-901. Dean Ornish, "Avoiding Revascularization with Lifestyle Changes: The Multicenter Lifestyle Demonstration Project," *American Journal of Cardiology* 82 (1998). Decision Memo for Intensive Cardiac Rehabilitation (ICR) Program - Dr. Ornish's Program for Reversing Heart Disease (CAG-00419N)," August 12, 2010, Centers for Medicare & Medicaid Services, <http://www.cms.gov/>
- (7) Caldwell B. Esselstyn Jr. et al., A Way to Reverse CAD? *Journal of Family Practice* 63 (July 2014): 356-364.
- (8-9) Caldwell B. Esselstyn Jr., Society of Actuaries 2017 Health Meeting, "The Nutritional Reversal of Cardiovascular Disease: Fact or Fiction?" <https://www.soa.org/pd/events/2017/health-meeting/pd-2017-06-health-session-012.pdf>.
- (10) Dean Ornish et al., Intensive Lifestyle Changes May Affect the Progression of Prostate Cancer, *The Journal of Urology* 174 (September 2005). Joanne Frattaroli et al., Clinical Events in Prostate Cancer Lifestyle Trial: Results from Two Years of Follow-Up, *Urology* 72 (December 2008).
- (11) John McDougall et al., Effects of 7 Days on an Ad Libitum Low-Fat Vegan Diet: The McDougall Program Cohort, *Nutrition Journal* 13 (2014): 1-7.
- (12) Neal D. Barnard, et al., A Low-Fat Vegan Diet Improves Glycemic Control and Cardiovascular Risk Factors in a Randomized Clinical Trial in Individuals With Type 2 Diabetes, *Diabetes Care* 29 (August 2006): 1777-1783.
- (13) Jens Kjeldsen-Kragh et al., Controlled trial of fasting and one-year vegetarian diet in rheumatoid arthritis. *The Lancet* 338 (12 October 1991): 899-902.
- (14) Roy L. Swank, et al., Effect of low saturated fat diet in early and late cases of multiple sclerosis, *The Lancet* 336 (7 July 1990): 37-39.
- (15) David P. Taggart, Current status of arterial grafts for coronary artery bypass grafting, *Ann Cardiothorac Surg.* 2(July 2013): 427-430.
- Tranbaugh RF et al., Coronary artery bypass grafting using the radial artery: clinical outcomes, patency, and need for reintervention, *Circulation* 126 (11 Sep 2012) :S170-5. Giacomino BD et al., Association of Hospital Prices for Coronary Artery Bypass Grafting With Hospital Quality and Reimbursement, *Am J Cardiol* 117(1 Apr 2016):1101-6. Dustin Rudolph, PharmD, BCPS "A Lifestyle Medicine Approach to Preventing and Reversing Diabetes" International Plant-Based Nutrition Conference, September 27, 2017. thennt.com/nnt/statins-for-heart-disease-prevention-with-known-heart-disease/. Luis-Emilio García-Pérez et al., Adherence to Therapies in Patients with Type 2 Diabetes, *Diabetes Ther.* 4(Dec 2013): 175-194. UK Prospective Diabetes Study (UKPDS) Group, Effect of intensive blood-glucose control with metformin on complications in overweight patients with type 2 diabetes.. *Lancet* 352 (Sep 12 1998):854-65. Diabetes Prevention Program Research Group. Long-term safety, tolerability, and weight loss associated with metformin in the Diabetes Prevention Program Outcomes Study. *Diabetes Care* 35(Apr2012):731-7. Patricia Maningat et al., How Do We Improve Patient Compliance and Adherence to Long-Term Statin Therapy? *Curr Atheroscler Rep.* 15 (Jan 2013): 291.
- (23) Reimbursement for Lifestyle Medicine, American College of Lifestyle Medicine, May 16, 2019