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

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Actuaries Club of Boston
2019 Fall Meeting
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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 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

<table>
<thead>
<tr>
<th>Include:</th>
<th>Exclude:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Grains</td>
<td>Meat (beef, chicken, pork, fish, etc.)</td>
</tr>
<tr>
<td>Legumes (Beans, Peas, Lentils)</td>
<td>Dairy products (milk, cheese, yogurt)</td>
</tr>
<tr>
<td>Vegetables</td>
<td>Eggs</td>
</tr>
<tr>
<td>Fruits</td>
<td>Oils (olive, safflower, canola, coconut, etc.)</td>
</tr>
</tbody>
</table>

• 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?

...and why whole plant-based foods will help keep you lean and satisfied.

forksoverknives.com
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

% Showing Improvement

% with Major Cardiac Events
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
# Early Stage Prostate Cancer

## Experimental Group vs. Control Group

<table>
<thead>
<tr>
<th>Measure</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA (Year 1)</td>
<td>-4%</td>
<td>6%</td>
</tr>
<tr>
<td>Reduced growth of cancer cells (Year 1)</td>
<td>70%</td>
<td>9%</td>
</tr>
<tr>
<td>Required traditional treatments (Year 2)</td>
<td>5%</td>
<td>27%</td>
</tr>
</tbody>
</table>
**John McDougall, M.D.**  
7 day intensive program – 1,600 patients

<table>
<thead>
<tr>
<th>Metric</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td>-29%</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>-18%</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>-48%</td>
</tr>
<tr>
<td>Reduction in Blood Pressure Medications</td>
<td>86%</td>
</tr>
<tr>
<td>Reduction in Diabetes Medications</td>
<td>90%</td>
</tr>
</tbody>
</table>
Satisfaction/compliance higher with plant-based diet -- no limits on calories
Plant-based diet easier to understand compared to one that limited portion sizes
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

Deaths due to Multiple Sclerosis

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?

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

*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
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

Surgeon advises patient on risks/benefits of both bypass procedure and plant-based nutrition

- Patient elects procedure
  - Surgeon is paid $5000
  - Total cost: $200,000

- Patient elects plant-based nutrition
  - Surgeon is paid $10,000
  - Payer saves $190,000
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

<table>
<thead>
<tr>
<th>Patient of Dr. Wayne Dysinger</th>
<th>Total cholesterol</th>
<th>Triglycerides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Values</td>
<td>226</td>
<td>132</td>
</tr>
<tr>
<td>After 21 days of Lifestyle Medicine (no statin drugs)</td>
<td>171</td>
<td>75</td>
</tr>
</tbody>
</table>

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
<table>
<thead>
<tr>
<th>Treatment Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetic Patient with HbA1c of:</td>
<td>9.0</td>
<td>6.5</td>
<td>6.5</td>
<td>6.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Expected Total Health Spending:</td>
<td>$15,000</td>
<td>$7,500</td>
<td>$7,500</td>
<td>$7,500</td>
<td>$7,500</td>
</tr>
<tr>
<td>PCP Share of Health Spending:</td>
<td>$1,500</td>
<td>$750</td>
<td>$750</td>
<td>$750</td>
<td>$750</td>
</tr>
<tr>
<td>Incentive Payment to PCP:</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>Net Savings Relative to Year 1:</td>
<td>$5,500</td>
<td>$5,500</td>
<td>$5,500</td>
<td>$5,500</td>
<td>$5,500</td>
</tr>
</tbody>
</table>
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
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
Sources by Slide Number


(5) www.forksoverknives.com


(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).


(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.


(23) Reimbursement for Lifestyle Medicine, American College of Lifestyle Medicine, May 16, 2019