Commercial Health Ins Issues

Section 2

HealthInsuranceCE
2025

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Section 2

Some Key Utilization Drivers

Chronic disease treatments consume about 85% of all healthcare spending with about half of Americans – that's roughly 160 million folks - having one or more chronic diseases. The number of chronic disease patients grows by 7 – 8 million every 5 years.[1]

The ten most common chronic conditions are arthritis, cancer, chronic obstructive pulmonary disease, coronary heart disease, asthma, diabetes, hepatitis, hypertension, stroke and weak or failing kidneys. These often – not always – have a lifestyle cause, a combination of excess body weight, suboptimal nutrition and insufficient exercise.

We have known about these chronic diseases, their costs and their causes for years, yet they continue and increase. Why? This chapter will suggest answers and focus on diabetes as a prime example of a lifestyle-caused chronic condition.

Diabetes occurs when your body produces too little insulin and results in you having too much sugar in your bloodstream. The disease comes in 2 basic forms: Type 1, an autoimmune disorder typically identified in kids for which there is no cure and Type 2, largely behaviorally based, in which your body doesn't use insulin well and can't regulate sugar in blood stream. About 95% of diabetic population has Type 2. It is largely preventable and potentially reversable. (Type 1 is neither.) We'll focus on Type 2 in this chapter.

Diabetes increases your risk of developing many of the chronic conditions listed above, perhaps most notably hypertension, failing kidney and heart disease. We might consider it a common cause of and link among America's epidemic of chronic diseases. That's admittedly an overstatement, though not a huge one.

Diabetes is defined by your number on one of 4 medical tests:

- Your A1C (aka hemoglobin A1C or HbA1c) above 6.5%
- Your fasting blood sugar above 126 mg/dL
- Your glucose tolerance above 200 mg/dL 2 hours after drinking a liquid. You need to fast the night before.
- Your random blood sugar above 200 mg/dL

About 37 million Americans have diabetes. It is the 7th leading cause of death and the #1 cause of kidney failure, lower limb amputations and blindness in the US. The number of diabetics has doubled in the past 20 years.

[1] The Relation of the Chronic Disease Epidemic to the Healthcare Crisis, Holman, American College of Rheumatology, Feb 19, 2020

Two syndromes / conditions predict a patient becoming diagnosed with diabetes: 'prediabetes' and 'metabolic syndrome'. Though overlapping in some ways, these are distinct. Both provide a warning to patients about their likely diabetes diagnosis future.

Prediabetes is a narrowly defined condition in which you have too much sugar in your bloodstream though not enough to have full blown diabetes. By the CDC's definition, you have prediabetes if tests determine the following about your blood sugar:

- Your A1C or hemoglobin A1C or HbA1c test is 5.7 and 6.4%.
  - Full blown diabetes is defined 6.5% or greater.
- Your fasting blood sugar test is 100 – 125 mg/dL.
  - Full blown diabetes is defined as 126 mg/dL or greater.
- Your glucose tolerance test is 140 – 199 mg/dL.
  - Full blown diabetes is defined as above 200 mg/dL.

Here's a summary chart.[2]

Result*	A1C Test	Fasting Blood Sugar Test	Glucose Tolerance Test	Random Blood Sugar Test
Diabetes	6.5% or above	126 mg/dL or above	200 mg/dL or above	200 mg/dL or above
Prediabetes	5.7 – 6.4%	100 – 125 mg/dL	140 – 199 mg/dL	N/A
Normal	Below 5.7%	99 mg/dL or below	140 mg/dL or below	N/A

About 96 million Americans have prediabetes including, according to Dr. Dariush Mozaffarian, dean of the Tufts Friedman School of Nutrition Science and Policy, about 1 in 4 American teenagers.[3] The condition increases your risk of developing Type 2 diabetes and suffering from all the problems associated with and resulting from it.

Metabolic syndrome, the other common precursor to full blown diabetes, is defined more broadly, again by the results of medical tests. It is a cluster of medical conditions occurring together, first identified in 1998. Though some researchers quibble about the exact numbers that define it, here is a generally accepted definition. [4]

- Obesity or having a BMI > 30.
  - Alternatively, males have a waist circumference >40 inches, females > 35.

[2] CDC Diabetes Basics https://www.cdc.gov/diabetes/basics/getting-tested.html

[3] Boston Globe, Nov 22, 2021 'The Obesity Pandemic Has Made Covid Much More Deadly'

[4] This definition comes from Harvard Health, Shmerling, Metabolic Syndrome is On the Rise, Oct 2, 2020 and AARP, Levine, Metabolic Syndrome

- Blood triglyceride levels above 150 mg/dL
- Low HDL (good) cholesterol, levels below 40 mg/dL in men or 50 in women
- High blood pressure, greater than 130/85 or on blood pressure medications.
    - For people over 60 years old, the American Heart Association suggests levels above 150/90
- Elevated blood sugar, having a fasting blood glucose level above 100 mg/dL, an A1C above 5.7 or taking diabetes medications.

Researchers seem to suggest that having 3 or more of these indicators defines someone has having metabolic syndrome.

Some 37% of Americans suffer from metabolic syndrome with the risk increasing as you age; some 50% of 60-year-olds have it including almost 60% of Hispanics over 60. [5]

People with metabolic syndrome are about 4x more likely to develop diabetes than healthy folks, 3x more likely to suffer a heart attack or have a stroke, and 55% more likely to develop kidney disease. In addition, according to the National Heart, Lung and Blood Institute[6], the syndrome increases your risk of developing

- Coronary heart disease
- Erectile disfunction
- Heart failure
- Inflammation and immune system problems – raise risks of complications from infections and Covid
- Organ damage esp pancreas, liver, gall bladder, kidneys
- Polycystic ovary syndrome (PCOS)
- Pregnancy complications such as preeclamsia, eclampsia, and gestational diabetes
- Problems with thinking and memory
- Sleep apnea and
- Certain cancers.

Metabolic syndrome, like prediabetes and diabetes itself, is largely preventable by maintaining a healthy weight, eating a healthy diet, exercising regularly and avoiding smoking.[7]

[5] AARP, Metabolic Syndrome, Levine

[6] National Heart, Lung and Blood Institute https://www.nhlbi.nih.gov/health/metabolic-syndrome/living-with

[7] Ibid.

This link between obesity, defined as having a Body Mass Index greater than 30, and diabetes is so strong that some researchers invented a new word for it: diabesity.[8] As the Cleveland Clinic put it in 2021:

> The pancreas creates insulin, which is a hormone that moves glucose out of your blood. Normally, insulin transports glucose to your muscles to use right away for energy or to the liver, where it's stored for later.
>
> But when you have diabesity, your cells resist letting insulin move glucose into them. To make matters worse, the area of your liver where excess glucose is usually stored is filled with fat. It's like trying to put furniture in a room that's already packed. With nowhere to be stored, the glucose remains in the bloodstream.
>
> Your pancreas becomes overworked, and as a result, it wears out. It starts producing less insulin. Diabetes develops and then quickly worsens if the fat resistance remains

The CDC calls diabetes the most expensive medical condition in the US, though no one knows for sure how much it costs because it affects so many other medical conditions. Should we include leg amputations as diabetes costs? The associated prosthetics? Unclear.

The CDC estimated direct diabetes costs and related reduced productivity at the lower end, $327 billion in 2017. That's about $500 billion today give a take a few dozen billion, about 14% of healthcare spending. That's the low estimate.

On the higher end, the American Diabetes Association claims that 25% of all US healthcare spending goes to diabetes and related treatments.[9] I don't know who's right here, but under either estimate, diabetes is a big deal and very expensive.

We know a lot about it, understand its causes and estimate its costs as high under any reasonable assumptions. Why can't we prevent it?

Why We Don't Prevent Diabetes
and cut healthcare spending while improving American's health

The classic advice for treating metabolic syndrome or pre-diabetes, the two typical precursors of full blown diabetes, is lifestyle modification. This traditionally has 2 components: dietary improvement and exercise increase. In short, eat a bit less of primarily healthier foods, and exercise a bit more.

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[8] Cleveland Clinic, November 2021 'Diabesity: How Obesity is Related to Diabetes', slightly edited in the following quote.

[9] American Diabetes Association. Economic costs of diabetes in the US in 2017. *Diabetes Care.* 2018;41:917–928.

Easier said than done.

Let's put some numbers and costs into this advice. We'll use American males as our case study here simply to present an analytic framework. This will help us understand our dismal failure to prevent diabetes.

> We could have used American females instead of males – same methodology, just different numbers. Ditto for other socio-economic groups: Latino women, Appalachian residents, Appalachian single parent families, elderly urban men, etc. Same methodology, different numbers.

We'll first address the dietary part of that old 'diet and exercise' mantra and consider calorie **quantity** and **quality**.

In 2022, the average American male – we'll call him Joe - was 5 foot 9 inches tall, 38 years old, exercised 1 – 3 times per week and weighed 198 lbs.[10] He had a BMI of 29.2, almost obese. He gained about 1.5 pounds per year. According to online calorie consumption estimates[11], he needs to eat about 2650 calories per day; that's the amount necessary to maintain his 1.5 pound / year weight increase.

We'll assume that Joe is single for analytic ease.

Joe needs to reduce his daily calorie intake to 2237 to lose ½ a pound per week. That would get him down to 172 pounds in a year for a BMI of 25.4, slightly overweight but not nearly obese. It would probably get him out of the prediabetic or metabolic syndrome condition and help him avoid diabetes.

> I choose the ½ pound per week weight loss as a moderate amount; I didn't want to bias this analysis with a more aggressive number. Some research suggests that a faster weight loss, with the associated greater degree of daily discomfort /

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[10] Average weight American male adult from healthline.com https://www.healthline.com/health/mens-health/average-weight-for-men

Average height American male adult from World Population Review https://worldpopulationreview.com/state-rankings/average-height-by-state

Average age Americans in 2022 from World Population Review https://worldpopulationreview.com/state-rankings/median-age-by-state

How Much Do Americans Exercise, Romero, Washingtonian, May 12, 2012

Daily calories to lose ½ lb / week from www.Calculator.net

Daily calories to gain 1.5 lbs / year from www.Calculators.net

Average American annual weight gain from Washington Post, 'Look How Much Weight You're Going to Gain' 1/29/2016

[11] In this case I used www.calculator.net.

hunger, leads to a quicker termination of this dietary program with the associated relatively fast rebound back to the original weight.

In other words, I want to stack the odds in Joe's favor.

We'll assume here that Joe spends 10% of his income on food. That comes from the US Department of Agriculture's 2021 estimate. [12]

We know that Joe earns $1,144 / week – that's $59,488 per year - thanks to various Bureau of Labor Statistics studies.[13] That means he has $16.34 available for food each day, 7 days / week, a combination of eating in and eating out. The BLS says we split this about 50/50.

If Joe was a Black or Hispanic male – an example of some specific socio-economic groups – he would only earn $820 / week ($42,640 per year) [14] meaning $11.71 available for food.

Or if Joe were a woman, a different socio-economic group, he would earn, on average, about 15% less and need about 10% fewer calories, than an average American male.[15]

Quick quantitative summary:

- Joe currently eats about 2650 calories per day. He gains about 1.5 pounds per year.
- He needs to reduce his daily caloric intake to 2237 to lose ½ pound per week or 26 pounds / year. That's 13% of his body weight.
- He has $16.34 available for food daily.

Let's turn now from calorie quantity to calorie **quality**. The most recent government recommendation is that our food plate consist of 50% fruits and vegetables, 25% grains – mainly whole grains – and 25% protein and dairy. That's a rough approximation of the

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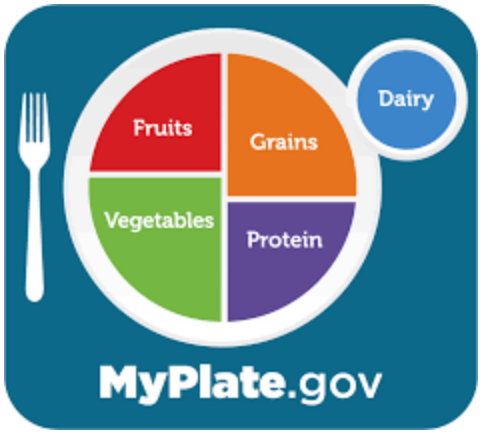
[12] US Dept of Agriculture estimate 2021, https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=76967#:~:text=In%202021%2C%20U.S.%20consumers%20spent,from%20home%20(5.1%20percent).

[13] Overall Median weekly earnings from BLS, wkyeng (5).pdf, July 29, 2022, 'Usual Weekly Earnings of Wage and Salary Workers Second Quarter 2022'

[14] Black and Hispanic male earnings from BLS, 'TED, The Economics Daily', Oct 25, 2021, https://www.bls.gov/opub/ted/2021/median-weekly-earnings-were-916-for-women-in-third-quarter-2021-83-3-percent-of-mens-earnings.htm#:~:text=Source%3A%20U.S.%20Bureau%20of%20Labor,End%20of%20interactive%20chart.&text=In%20the%20third%20quarter%20of%202021%2C%20median%20weekly%20earnings%20for,the%20median%20for%20White%20men.

[15] Earning estimates from various BLS studies. Calorie estimates from calculator.net; I simply substituted 'female' for 'male' using Joe's numbers. The calculator estimated 2008 calories / day for a woman instead of 2237 for Joe.

US Department of Agriculture's MyPlate, image below. You can google MyPlate.gov for more.



I don't like this graphic though. It's too cartoonish in my opinion and not detailed enough as a guide. I prefer the Canadian version, below. It's essentially the same – see the small dairy dish in the protein section as opposed to the small dairy circle in the American MyPlate version - but with more impactful graphics in my opinion. The Canadian version shows specific foods in each category. We'll use it in this chapter rather than the MyPlate image, again, only for presentation reasons. Feel free to disagree with my artistic taste.

The Canadian Food Plate

Water is the recommended drink.

You can quickly see the breadth and types of foods in each category and the approximate serving size of each.

> Proteins, for example, include nuts, beans, legumes and eggs, not just chicken, beef, pork, and fish and take up a quarter of your meal plate.
>
> Fruits and vegetables come in lots of different colors and flavors, with that variety apparently providing nutritional benefits.

This version seems to suggest that we eat lots of different vegetables, not just potatoes and tomatoes, the most commonly consumed vegetables in the US, which together dwarf all the others combined.[16]

Ditto lots of different fruits, not just apples and oranges, the most commonly consumed fruits in the US, which, along with bananas, dwarf the others.[17]

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[16] Potatoes and tomatoes most commonly consumed vegetables, US Economic Research Service, Department of Agriculture, 2019 https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=58340

[17] Apples and oranges are top US fruit choices, US Economic Research Service, Department of Agriculture, 2019 https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=58322

That's why I like this graphic: it's impactful and suggests what to eat simply and comprehensibly.

It also tells you what to avoid. Look at what's not on this plate:

- Corn
- Sugar
- Sweeteners
- Oils, salad dressing
- Refined, bleached flour
- Processed foods and snacks like chips, cookies & baked goods
- Sugary drinks
- Beer, wine & alcohol

We eat lots of these foods. Consider these summaries from a 2016 Pew study of American food and nutrition practices:[18]

> Baked goods, a $35 billion / year market segment not on the Food Plate, includes refined flour and sugar.
>
> Sweeteners, about 15% of daily calories for the average American, include sugar and corn based products (in addition to non-caloric options like aspartame). A can of regular Coke contains 140 calories for example. Americans consume about 40 gallons of soft drinks per person annually, 72% non-diet.[19] Soft drink sales run about $318 billion per year. Not on the Food Plate.
>
> Snacks, about 27% of children's daily caloric intake (remember Tufts School of Nutrition Dean Dr. Mozaffarian's estimate that 1 in 4 American teenagers is pre-diabetic?), mainly salty snacks, candy, cookies, and sugary drinks. Salty snacks, ice cream, candy and cookies are a $70 billion / year industry segment. Not on the Food Plate.
>
> Oils for cooking, flavoring, and salad dressing, about 23% of our daily calories. On average. Americans eat about 36 pounds of these per year. Not on the Food Plate.
>
> Processed foods including hydrogenated oils, HFCS, flavoring agents and emulsifiers used in foods like potato chips, sugary drinks & processed meat, not on the Food Plate. Processed foods tend to lead to higher weight gain than unprocessed.[20]

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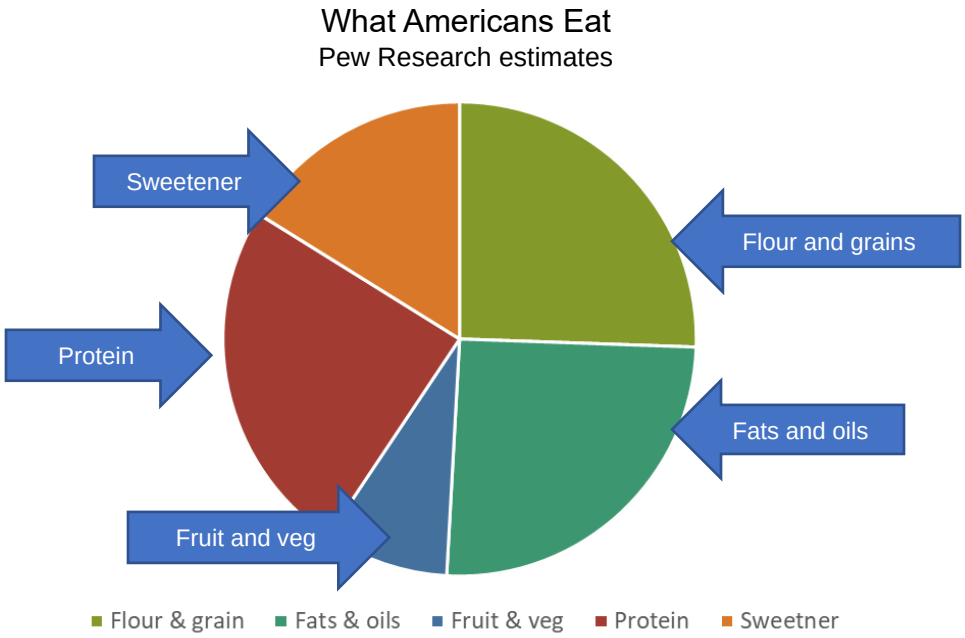
[18] What's On Your Table: How America's Diet Has Changed Over the Decades, Drew Desilver, Dec 13, 2016

[19] Diet vs regular soda percent estimates from statistica.com https://www.statista.com/statistics/1133019/carbonated-soft-drinks-regular-vs-diet-volume-us/

[20] First randomized, controlled study finds ultra processed diet leads to weight gain, Clinical Center News from NIH, 2019 https://clinicalcenter.nih.gov/about/news/newsletter/2019/summer/story-01.html

Instead of eating the high quality calories shown on the Food Plate above, here, according to the Pew Research folks, is what we really eat:



I find this estimate credible based on supermarket shelf space allocations and restaurant menus.

> Supermarkets allocate shelf space according to food sales, more to foods that sell the best. See, for example, the space allocated to salad dressing, cookies and sweetened breakfast cereal.
>
> Restaurants offer meals that people request the most. See, for example, in moderate priced, popular restaurants - the large chains for example – the frequency of 'burger and fries' or 'chicken, potato and small vegetable of the day' or 'salad' generally consisting only of lettuce, tomato and carrot shavings doused in dressing (many restaurants offer more dressing options than vegetable variety). Compare to the frequency of fruit offerings.

Joe, our typical American male, thus faces 3 tasks in the attempt to improve his diet and thus avoid diabetes.

- Eat fewer calories.
- Eat higher quality calories.
- Stay within his $16.34/day food budget.

How might he accomplish all this?

Composite Daily Menus

Let's compare the daily costs of Joe's current diet and a healthier one designed to prevent diabetes. I've developed two sample day's meals – one called Food Plate based on the Canadian Food Plate above and the other called Typical based on the Pew analysis. I used food prices at my local Shaw's supermarket in Easton, Massachusetts in October 2022.

These diets are composites of what people *should* eat and what they often *in fact* eat. In designing these menus – particularly the typical one - I considered supermarket shelf space. I choose popular items meaning lots of people buy and eat them.

We have, of course, endless food options and combinations in this country. I present this analysis in part to show calorie and cost data and in part to show a methodology. Do a similar analysis yourself and see your own results. I suspect they will be close to mine below.

The healthier diet below comes to 2239 calories for a day (very close to our theoretical goal of 2237); the typical diet comes to 2648 calories (very close to our daily estimate of 2650). Some minor rounding issues, a calorie or penny here or there. But look at the cost difference.

Breakfast, Food Plate

- 2 jumbo eggs @ 90 calories each = 180 calories, $1.33
- 2 pieces multigrain toast @ 100 calories each = 220 calories, $.66
- Butter @ 50 calories / serving = 50 calories, $.16
- 1 banana = 100 calories, $.23
- Black coffee = 2 calories, $.20
- 552 calories
- $2.58 at Shaw's, Easton

Breakfast, typical diet

- Shaw's honey bran muffin = 420 calories, $1.25
- Coffee = 2 calories, $.20
- Cream @ 35 calories per serving of Coffeemate = 35 calories, $.07
- Sugar @ 30 calories per serving of granular sugar = 30 calories, $.04
- 487 calories
- $1.56 at Shaw's, Easton

Lunch, Food Plate

- Spinach salad w/ tomato, carrots, yellow pepper, beets (130 cal total, $5.02)
    - 1 serving of fresh spinach = 20 calories, $1.71
    - Half a tomato = 45 calories, $1.50
    - Half a serving of carrots = 15 calories, $.16
    - Half a yellow pepper = 25 calories, $.85
    - Half a serving of beets = 25 calories, $.80
- Oil & vinegar dressing = 84 calories, $.22

- .3 lb chicken breast @ 748 calories per pound = 224 calories, $1.20
- 1 pita = 90 calories, $.37
- Apple = 95 calories, $.66
- 623 calories
- $7.47 at Shaw's, Easton

Lunch, typical diet

- Ham & cheese on sub roll with mustard & iceberg lettuce (538 cal total, $3.20)
    - Ham,.25 pound @ 885 calories per pound = 221 calories, $2.00
    - Cheese, 1 slice = 100 calories, $.30
    - Sub roll = 200 calories, $.50
    - French's mustard, 1 serving = 1 calorie, $.03
    - Iceberg lettuce .15 of a head = 16 calories, $.37
- Bag of chips from multi-bag box = 150 calories, $.52
- 3 Oreos = 160 calories, $.26
- Apple = 95 calories, $.66
- Coca Cola, can = 140 calories, $.23
- 1083 calories
- $4.88 at Shaw's, Easton

Dinner, Food Plate

- Basmati rice bowl with broccoli, summer squash, snap peas, green beans, .4 lb salmon, soy (872 calorie total, $8.48)
    - 2 cups Basmati rice @ 170 calories per cup = 340 calories, $.38
    - 1/3 pound of broccoli = 51 calories, $.66
    - 1/3 pound of summer squash = 24 calories, $.66
    - 1 serving of sugar snap peas = 35 calories, $1.00
    - ¼ pound of green beans = 25 calories, $.82
    - .4 pounds of salmon = 378 calories, $4.80
    - 1 tablespoon low salt soy sauce = 20 calories, $.16
- Blueberries (.5 pint) = 115 calories, $1.00
- Strawberries (.5 lb.) = 74 calories, $2.50
- 1061 calories
- $11.97 at Shaw's, Easton

Dinner, typical diet

- Pasta with sauce, ground beef, grated cheese (578 calories,$2.55 total)
    - Barilla pasta, 1 serving = 200 calories, $.37
    - Prego traditional pasta sauce, 1 serving = 70 calories, $.80
    - 80% ground beef, .25 pounds = 288 calories, $1.25
    - Grated Kraft parmesan cheese, 1 serving = 20 calories, $.13
- Green salad with dressing (150 calories)
    - Dole American salad bag, 2 servings = 30 calories, $1.50
    - Ken's House Italian dressing, 1 serving = 120 calories. $.25
- Canned peaches, 1 serving = 100 calories, $.50
- Friendly's vanilla ice cream, ½ serving = 105 calories, $.28

- Bottle of Budweiser beer = 145 calories, $1.38
- 1078 calories
- $6.46 total, food from Shaw's, Easton, beer from Walmart

You can see my spreadsheets at the end of this chapter for additional details.

> I encourage you to use this methodology with your dietary decisions. You can adjust the daily calorie targets to fit your own needs, then insert your foods of choice.

We learn from this process that 2237 healthier Canadian Food Plate calories cost $22.02 / day. Those are the foods Joe is supposed to eat, with meals designed to lose ½ pound per week. If Joe spends 10% of his salary on food as the Bureau of Labor Statistics suggests, then he needs to earn at least $80,000 per year to afford this menu.

But Joe only earns $59,488 per year. We learned that earlier in this chapter. He can't afford the healthy Food Plate!

> Imagine that Joe is a Black or Hispanic male. He'd only earn $42,640 per year making the Food Plate even more unaffordable.
>
> Try this with your socio-economic demographic of interest and see what you learn.

Now let's consider the 2648 calorie typical diet. It only costs $12.90 / day, making it affordable to people earning at least $47,000 per year. Joe earns that much. It is tasty and satisfying.

But he gains 1.5 pounds per year on it and risks prediabetes, metabolic syndrome and diabetes.

We're beginning to learn why we don't prevent diabetes by following the 'eat more fruits, vegetables and whole grains, less processed food, fat and sugar' mantra. It's too expensive.

This analysis only addressed foods prepared at home using one particular supermarket's prices. I ran a similar analysis on restaurants, comparing healthier and typical meals at Cheesecake Factory and D'Angelo's. It's methodologically easy; simply look up your items of choice on the restaurant's menu and nutritional guide – sometimes they're listed together on the menu - then divide.

Here's what I found, again all in October 2022.

> At the Cheesecake Factory, 'The Club' sandwich with turkey, bacon, bread, French Fries, lettuce, tomato and mayonnaise contains 1740 calories and costs $17.95. That's 1.0¢ per calorie.

The Cheesecake Factory's Skinnylicious Factory Chopped Salad including dressing contains 530 calories and costs $15.95. That's 3.0¢ per calorie, 3x more per calorie than the Club sandwich.

At D'Angelo's, the medium Italian sub contains 790 calories and costs $10.29. That's 1.3¢ per calorie.

The D'Angelo's Garden Salad with small Pokket (pita bread) but without dressing contains 180 calories and costs 4.6¢ per calorie, about 3.5x more per calorie than the Italian sub.

As with our supermarket example above, eating the Food Plate healthier calories costs more. The oft-recommended 'fruits, vegetables and whole grains, not processed food, fat and sugar' diet is still too expensive.

How much more expensive? According to my supermarket food data above, eating healthier – meaning eating according to the Food Plate – costs about $9.12 more per person per day. That's $3320 per year or, for the US average 2.6-person household, over $8300.

A *single person* would need to earn $33,000 more annually to afford the Food Plate meals above. That's using the US Department of Agriculture's '10% of your income on food' estimate discussed above.

An *average American household* would need to earn $83,000 more.

That's not the cost of eating but the *additional* cost of eating a healthy diet, the one designed to avoid or exit from, metabolic syndrome.

That's a significant economic disincentive to eat healthy foods and a significant economic incentive to stay the course.

Why do healthier foods cost more?

This chapter is not a discussion of food subsidies but the question often arises from astute readers. Here's a very short explanation:

Congress and various states subsidize food production.[21] In 2016, for example, the feds provided $13.9 billion in crop subsidies and insurance payments, equivalent to 25% of farmers income. Those subsidies generally went to the largest and best organized farm groups like huge companies that produce commodities - corn and soybeans for example. About 90 million acres – half our farmland – goes to those types of (heavily subsidized) products.

[21] This analysis comes from Barth, Congress Finally Passed a New Farm Bill, January 7, 2019, Modern Farmer

Food producers, in turn, then use those products in processed foods. That helps explain why corn sugar (a.k.a High Fructose Corn Sugar, HFCS and corn syrup) is included in so many of our processed foods. Just check the ingredients of your favorite jars or cans of food. We'll discuss this more in the section on food tastes, below.

> Subsidized corn sugar helps control the cost of real sugar, thus expanding the market for sweeteners, about 15% of American's typical daily calories.

Meanwhile, only about 10 million acres, or 3% of our cropland, goes to fruits, nuts and vegetables, products not typically included in the farm subsidy programs. They're more expensive for 2 reasons:

- Consumers pay the full price for their production since production costs are not subsidized
- There is no excess supply since their acreage is constrained by market forces, not supplemented by subsidies. Tighter acreage means less supply. The standard economics of price being determined by supply and demand factors then takes over.

We subsidize the foods we're not supposed to eat much of, and fail to subsidize the foods we're supposed to eat in abundance.

But wait, there's more

Let's now discuss some additional, non-cost problems of switching from our typical to a Food Plate diet. The problems fit into 3 groups: hunger, taste, and convenience. How much of a financial incentive would be required to induce people to overcome these problems? That's over and above the $3320 per person food cost difference.

Hunger: as people eat fewer calories, they feel hungry. That's the prime behavioral reason so many diets fail: people want that satisfying full feeling.

> I sometimes hear people claim, 'I lost 25 pounds and never felt hungry.'
>
> I rarely see these dietary results replicated on a large group of people over a long time period, making me dubious. Indeed, studies suggest that the vast majority of dieters regain all their weight within 2 years. I suspect hunger or related food cravings is a primary culprit.
>
> But when people claim to have lost weight without feeling hungry, I often respond 'Why doesn't everyone do that?'. That generally ends the conversation.

I can identify only 2 large groups of people who successfully lose weight by dieting and keep it off for a long time period: actors and athletes. (Apologies if I unintentionally missed a group.) Actors and athletes often / always have body weight requirements included in their employment contracts. That's a tremendous economic incentive, far exceeding anything that employers, insurance companies or the medical establishment can provide to employees or patients.

A word about the long term issue facing of dietary incentives. Good food habits – eating certain foods, losing your taste for others, acclimating yourself to a certain 'appropriate' hunger – takes months if not years to develop. By appropriate' hunger, I mean accustoming yourself to feeling somewhat hungry much of the time and feeling only somewhat full immediately after meals. Most people, according to studies, need at least a few months to develop new food habits; other folks need much longer.[22] I needed a year when I lost 40 pounds in 2021 but that story comes later in this chapter.

How much of an economic incentive does Joe need to switch from his traditional 2650 calories per day to the Food Plate's 2237? Probably less than the $200,000 Matthew McConaughey earned for his 50 pound weight loss in Dallas Buyer's Club but I don't know how much less. Perhaps 3% of Joe's annual income? 5%? While I don't know the exact amount, I'm pretty sure that a calorie-restricted dietary program needs to address this issue.

Taste. Our Food Plate lacks many tastes common to the typical American diet – sugar, salt, salad dressings, mayonnaise, etc. People sometimes complain that healthy foods taste bland. They also sometimes describe food cravings, missing various tastes and sensations.

Food producers know this and have identified the 'bliss point', a combination of sweetness, saltiness and richness (generally some sort of fat) that people find satisfying. The right combination of these sends a jolt of endorphins to your brain causing a pleasure sensation and desire to do it again. That's why people like mayonnaise on sandwiches, salad dressing on their salads and cream and sugar in their coffee. It makes food more satisfying. How often have you heard 'I just couldn't drink black coffee'?

The combination of sweetness, saltiness and richness works better together than any one ingredient on its own. That's why a standard sized Hershey Bar contains 35 milligrams of sodium[23] and a Nestle Crunch Bar 66 milligrams[24] and why Jif peanut butter contains 2 grams of sugar per serving[25] and Barilla pasta 7 grams[26].

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[22] Grohol, Need to Form a New Habit? Give Yourself At Least 66 Days, PsychCentral, October 7, 2018 https://psychcentral.com/blog/need-to-form-a-new-habit-66-days ; UCL News August 9, 2009 Interview with Phillippa Lally https://www.ucl.ac.uk/news/2009/aug/how-long-does-it-take-form-habit

[23] https://www.hersheyland.com/products/hersheys-milk-chocolate-candy-bar-1-55-oz.html

[24] https://www.heb.com/product-detail/nestle-crunch-candy-bar/98268

[25] https://www.jif.com/peanut-butter/creamy/simply-jif

[26] https://www.heb.com/product-detail/barilla-traditional-sauce/1637428

Fruits and vegetables lack the bliss point. There's infinitesimal salt in an apple or yellow pepper, infinitesimal sugar in spinach or kale. And no fat.

The good news is that people can adjust their tastes to become satisfied with non-bliss point foods. The bad news is that it takes time to develop the habit, likely that same as to adjust to the new 'slightly hungry' or 'no longer totally full' eating feeling. Again, programs aiming to help people eat fewer-but-healthier calories need to maintain their incentives for this lengthy time period.

Convenience. Joe's typical meals included a store baked honey bran muffin as opposed to the Food Plate home cooked eggs and toast. His ham-and-cheese sandwich lunch with a bag of chips and Oreos was quicker to make than the Food Plate made-from-scratch spinach salad with chicken breast. Not only quicker to make, but also quicker and easier to eat.

And his industrially produced dinner Prego pasta sauce with canned peaches and ice cream for dessert was easier to prepare than the Food Plate home-made rice bowl.

Accessing these convenient foods is easy and relatively stress free – just open the can or package. Meanwhile, shopping for, cutting and preparing the less-convenient-but-healthier Food Plate meals is more difficult and time consuming, and therefore more stressful in our time compressed daily lives.

As one indication of convenience importance in our daily food decisions, consider the number of take-out food options now available. (I'm not sure if take-out counts as eating at home or out, but it doesn't much matter what we call it as long as people stay within their '10% of salary on food' parameter.) We had, for example, 71,856 pizza restaurants in 2012 but 78,092 in 2020.[27] That's almost a 9% increase in 8 years, not including other competitive take out options. All this suggests that increasing numbers of us order out to eat in, the definition of convenience.

How much should designers of wellness or diet programs incentivize people to eat more labor intensive / healthier foods as opposed to more convenient-but-less healthy? I don't know – sorry, not a program designer – but food convenience is one factor that such programs need to address. 'Address' here means 'provide economic incentives to do'.

Summary of the diet part of 'diet and exercise'

We have established so far that eating fewer-but-healthier calories costs more than eating more-but-unhealthier ones. The cost difference is about $9.12 per person per day or $3320 per year. Those are, of course, just estimates – take them with a grain of salt. (Bad pun.)

[27] Number of pizza restaurants in the US, Statistics https://www.statista.com/statistics/377597/number-of-pizza-restaurants-us/

We have also discussed

- how eating fewer calories makes people feel hungry
- how eating non-bliss point foods diminishes taste satisfaction, and
- how consuming less convenient foods is more difficult and time consuming.

Overcoming those behavioral obstacles requires additional financial incentives for the 6-to-8 months – or more – necessary for the new dietary habits to get formed.

Remember our discussion so far: we want to help people avoid prediabetes, metabolic syndrome and diabetes. We have explored the 'diet' part of that standard 'diet and exercise' recommendation. We learned that eating healthier foods is more expensive, less tasty, less convenient and less comfortable. The dietary goal is, therefore, difficult to achieve.

> Tons of real world evidence shows this, including increasing rates of obesity and diabetes in the past 20 years.

Let's switch focus and turn to the exercise side now, to see if that holds more promise for success.

Exercise

The April – May 2004 issue of Harvard Magazine summarized some then-current research at Harvard University and Medical School as follows (lightly edited for context):

> [Researchers are developing] a pill, a marvel of modern medicine that will regulate gene transcription throughout your body, helping prevent heart disease, stroke, diabetes, obesity, and 12 kinds of cancer—plus gallstones and diverticulitis.
>
> Expect the pill to improve your strength and balance as well as your blood lipid profile. Your bones will become stronger. You'll grow new capillaries in your heart, your skeletal muscles, and your brain, improving blood flow and the delivery of oxygen and nutrients.
>
> Your attention span will increase. If you have arthritis, your symptoms will improve.
>
> The pill will help you regulate your appetite, and you'll probably find you prefer healthier foods. You'll feel better, younger even, and you will test younger according to a variety of physiologic measures.
>
> Your blood volume will increase, and you'll burn fats better. Even your immune system will be stimulated.[28]

[28] The Deadliest Sin, Harvard Magazine, April – May 2004

There is just one catch. There's no such pill.

The prescription instead is exercise.

Everyone knows that exercise is good for you. The Harvard quote makes the point poignantly. But touting the overall benefits of exercise is not our aim here. Instead, our focus is diabetes prevention and, more specifically, the impact of exercise on people with prediabetes or metabolic syndrome. How does exercise impact these groups?

Several papers address this, mainly metabolic syndrome patients. I'll quote 3 below.

One study by the Norwegian University of Science and Technology Faculty of Medicine in 2008 found that 36% of patients with metabolic syndrome reversed the condition with 4 months of exercise.[29] "The study shows that shows that exercise in general, but especially interval training, is able to partially or completely reverse metabolic syndrome," according to lead author Arnt Erik Tjønna.

Second, a 2017 meta-review of 16 studies was, according to the authors, the "first to compare the effects of aerobic, and combined aerobic and resistance, exercise on clinical outcome measures in people with metabolic syndrome".[30]

The authors concluded that

- BMI was significantly reduced in exercise versus control groups.
- Fasting blood glucose was significantly reduced in exercise compared to control groups.
- Triglycerides were significantly improved, and LDL cholesterol was significantly improved in exercise versus control participants.
- HDL cholesterol was unchanged in exercise versus control participants.

Third, a 2019 metastudy, published in Nutrients suggested that "physical activity as a treatment for metabolic disease remains underutilized." [31] Among their findings

> In one component study "exercise training resulted in marked improvements in the metabolic profile of the participants, including triglycerides, HDL cholesterol, blood pressure, fasting plasma glucose, and waist circumference. Of the 105 participants with the metabolic syndrome at baseline, 30.5% (32 participants) were no longer classified as having the metabolic syndrome after training."
>
> A different component study found "strong support the use of aerobic exercise for patients with the metabolic syndrome who have not yet developed diabetes."

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[29] https://norwegianscitechnews.com/2016/08/exercise-to-combat-metabolic-syndrome/

[30] Ostman et al, The effect of exercise training on clinical outcomes in patients with the metabolic syndrome: a systematic review and meta-analysis, Cardiovascular Diabetology, 2017

[31] Myers et al, Physical Activity, Cardiorespiratory Fitness, and the Metabolic Syndrome, Nutrients, July 19, 2019

A third component study totaling 77,000 patient hours of exercise for folks with metabolic syndrome found “In analyses comparing aerobic exercise training versus control groups, there were reductions in BMI, waist circumference, systolic blood pressure and diastolic blood pressure, fasting blood glucose, triglycerides and low-density lipoprotein.”

The authors concluded that “achieving the minimal physical activity guidelines (at least 150 minutes per week of moderate-intensity activity or 75 minutes per week of vigorous intensity activity) has been consistently demonstrated to have significant benefits on metabolic risk” and “Among subjects who meet the criteria for the metabolic syndrome, health outcomes are significantly improved by aerobic or resistance training, or their combination.”

Terrific benefits to people suffering from metabolic syndrome. Unfortunately, Americans don’t exercise much or enough.

The CDC recommends that adults get 2.5 to 5 hours of moderate cardio exercise per week and 30 minutes of muscle strengthening exercise. Only 23% of us meet these targets, skewed toward higher income folks.[32] Lower income folks, those most likely to find switching to the Food Plate diet more economically difficult, tend to exercise the least.

How much might it cost to incentivize people to exercise? An old economic rule-of-thumb suggests that people value their free time at 1/3 the amount they normally earn. Our hero Joe, earning the US male average of $1,144 / week, gets $28.60/hour and would therefore values his free time at $9.44/hour. He would, according to this economic theory, exercise in his free time if someone paid him $9.44 / hour or more.

Joe probably should exercise about 4 hours / week – that’s conservative, the mid-point of the CDC’s weekly recommendation. I exercised about 7 hours / week during my own weight loss period, mainly brisk walking, but again, that discussion comes later in this chapter. Joe’s 4 hours / week would cost $37.76, or $1964 in annual incentives. I don’t know who pays this – an employer, insurance company, hospital, TPA or other. At this point, I only want to suggest what the incentive would be. I focus here on why we fail to prevent diabetes and invite others to figure out the rest.

The Context of our Failure to Treat Metabolic Syndrome and Prevent Diabetes

Two socio-medical factors underly our failure to treat patients suffering from metabolic syndrome and to prevent diabetes. I’ll briefly address each in turn.

[32] Only 23% of adults meet guidelines, Time Magazine, Ducharme, June 28, 2018.

Television. Americans watch, on average, about 3 hours of TV each day.[33] The states in which people watched the most TV correlate closely with states having the highest percent of obese people – West Virginia, Alabama, Arkansas and Mississippi. Obesity often leads to diabetes. We begin to see the television link

"The best single behavioral predictor of obesity in children and adults is the amount of television viewing," according to Harvard School of Public Health's Professor Steven Gortmaker.[34] "The relationship is nearly as strong as what you see between smoking and lung cancer." Wow.

Unpack this:

> TV watching is non-weight bearing, non-aerobic, entirely sedentary activity that generates no metabolic system benefit or weight loss.
>
> TV watching exposes viewers to (generally less healthy) food products. That advertising leads to sales, otherwise companies wouldn't continue. Products advertised rarely include the fruits and vegetables that are supposed to account for half our food plate.
>
> > The average American child sees over 40,000 TV commercials per year according to estimates by the American Psychological Association.[35] That's a lot of low-quality food message reinforcement!
>
> TV watching, according to anecdotal evidence, is associated with munching less healthy foods. People report eating salty snacks, buttery popcorn, sugary baked goods and similar while watching TV; fewer (none?) report over-indulging in broccoli or kale.

The take-away about television watching: if you want to create an obese, diabetic population, get them to watch a lot of TV. Our bountiful viewing options including streaming services, seem ideally suited to this task.

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[33] Hubbard, Outside of Sleeping, Americans Spend Most of Their Time Watching TV, US News, July 22, 2021. Also Statistica, Average Daily Time Spent Watching TV, https://www.statista.com/statistics/186833/average-television-use-per-person-in-the-us-since-2002/#:~:text=Estimates%20suggest%20that%20in%202022,hours%20watching%20TV%20each%20day .

[34] The Way We Eat Now, Craig Lambert, Harvard Magazine, May-June 2004

[35] Protecting Children From Advertising, American Psychological Association, June 2004 https://www.apa.org/monitor/jun04/protecting#:~:text=The%20average%20child%20is%20exposed,a%20year%2C%20according%20to%20studies.

Cholesterol treatments. Our typical diet, referenced in the meal case study above, leads to high blood cholesterol, with statin prescriptions a primary treatment. About 1/3 of American adults currently take a statin.[36]

Statins, it turns out, may *increase* your risk of developing type 2 diabetes.

Statins prevent the buildup of fatty deposits in blood vessels and reduce the inflammation that occurs when arteries are blocked. This lessens your risk of having a heart attack, but it may also make cells more resistant to insulin, the hormone that helps regulate glucose levels in blood. The net effect according to various studies:[37]

- Statins increase your risk of developing diabetes by about 9% on average, but
- The higher the statin dose, the higher the diabetes risk, and
- The higher your blood sugar levels when you start taking the statin, the more likely you are to develop diabetes.

That means sicker people, taking higher statin doses, are more likely to develop diabetes, exactly the people most at risk.

One study found that, on average again, 1 in every 255 people who take a statin for 4 years will develop diabetes[38] but older patients especially those suffering from multiple health problems are at higher risk that younger, healthier people.[39]

Note the caveat here: though changes in blood sugar caused by statins are 'pretty modest' according to Dr. Jill Crandall, an endocrinologist at the Albert Einstein College of Medicine in New York, they may be enough to tip someone from prediabetes to full blown diabetes.[40]

Let's tie all this together:

- Diabetes and related medical costs account for up to 25% of all healthcare spending, with diabetes rates rising
- About 90% of diabetes is type 2, caused by lifestyle behavior
- The standard 'lose weight and exercise to avoid diabetes' prescription is both unaffordable and unpalatable to most of us; diets generally fail within 2 years
- The economic incentives required to keep people on their diet and exercise programs are unaffordable to employers, insurance carriers or similar

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[36] The 1/3 estimate is extrapolated from the trend. https://consumer.healthday.com/general-health-information-16/misc-drugs-news-218/number-of-americans-taking-statins-keeps-rising-cdc-694895.html or https://www.ahrq.gov/data/infographics/statin-use.html

[37] This analysis comes from Madhusoodanan, NY Times, October 25, 2022 Ask Well 'Do statins increase the risk of type 2 diabetes?'

[38] Sattar, Statins and risk of incident diabetes, https://www.ncbi.nlm.nih.gov/books/NBK78906/

[39] Madhursodanan, op cit

[40] Ibid.

- One common behavioral response to our high stress lifestyles – TV watching – may exacerbate the diabetes problem
- Medical treatments for other behaviorally related health problems, i.e. statins to lower cholesterol, may also exacerbate the diabetes problem.

Is there a medical solution?

Semaglutide

Semaglutide developed by Novo Nordisk, apparently treats obesity and diabetes quite well.

In one large random controlled study, for example, patients taking 2.4 milligrams of semaglutide lost an average of 6% of their body weight by week 12 and 12% of their body weight by week 28. That's impressive.

Other studies have suggested similar successes.[41]

In February 2022, the British National Institute for Clinical Excellence (NICE), the UK's medical rationing agency, approved Wegovy, Novo Nordisk's brand name for semaglutide to treat obesity. In the vernacular, NICE approval means the drug works; it has a higher approval bar than the US Food and Drug Administration.

> Eli Lilly has developed a competitor weight loss drug called tirzepatide, not yet approved as of time of writing. I assume other companies have already, or will, similarly design competition to semaglutide.

NICE's stringent use guidelines for semaglutide illustrate some underlying issues with the drug.[42]

- It is approved for people with at least 1 weight related medical issue and a BMI of 35 or more, or, only exceptionally, for people with a BMI between 30 – 34.9
- It can only be prescribed as part of a specialist weight management program including supervised weight loss coaching. This has implications for the US where only 1% of physicians are trained in obesity medicine.[43]
- Semaglutide can be prescribed for 2 years, maximum.

Novo Nordisk also sells semaglutide it for diabetes treatment under the brand named Ozempic.

But the pricing:

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[41] Weghuber et al, One-Weekly Semaglutide in Adolescents with Obesity, NEJM, Nov 2, 2022

[42] Much of this discussion comes from 'NICE approves Wegovy for obesity', European Pharmaceutical Review, February 10, 2022 https://www.europeanpharmaceuticalreview.com/news/168431/nice-approves-wegovy-semaglutide-for-obesity/

[43] Kolata, The Doctor Prescribed and Obesity Drug; the insurance company called it vanity, NY Times, May 31, 2022. Much of the following discussion comes from this source.

- Ozempic, semaglutide for diabetes, lists for $894 for 4 weeks in the US. Insurance companies normally cover it for diagnosed diabetics.
- Wegovy, semaglutide for weight loss, lists for about $1,350 per month. Insurance companies normally don't cover it, at least not without a fight.
- Saxenda, basically Wegovy lite also by Novo Nordisk, also lists for $1,350 per month. Ditto on the insurance coverage front.

This creates confusing incentives. In the US, having a high BMI does not necessarily quality a patient for Wegovy or Saxenda as in the UK. American doctors must wait until their patient becomes diabetic. Patients 'only' suffering from obesity and metabolic syndrome don't have access so must settle for less robust, older medications, often with unpleasant side effects. As the New York Times reported, one doctor 'finds herself rejoicing when patients have high blood sugar levels'[44], i.e., becomes diabetic and therefore eligible for treatment.

We don't yet know the long term effects of semiglutide because the it's too new:

- Does a patient who loses 12% of their body weight in 7 months then keep it off?
- What happens when, in the UK situation, semaglutide's prescription runs its full 2-year course: does the patient regain the weight or not?
- Is 2 years long enough for the patient to develop good eating habits?
- Can the patient afford to stay on the healthier diet?
- What is the medical cost difference between staying on Wegovy for life and returning to obesity and diabetes?

We also can't yet answer the most important economic question: how do semaglutide treatment costs compare with medical treatment costs over time? We can only, today, guess at the answer.

Semaglutide and, perhaps, Novo Nordisk's competitor's drugs, may be the light at the end of the obesity-to-metabolic syndrome-to-diabetes tunnel. Or they may be the proverbial headlight of an oncoming train. I certainly don't know which, but the future looks murky to me. At best.

Case study
My own experience with metabolic syndrome

My doctor diagnosed me with metabolic syndrome in August 2020 based on various numbers from my annual physical.

> A quick word on numbers and annual physicals. I consider these equivalent to a half-semester report card in high school, a rough indication of your academic health and direction. You might be a good student having a bad semester for some ephemeral reason. You might have a serious intellectual disease. Or you

[44] Ibid.

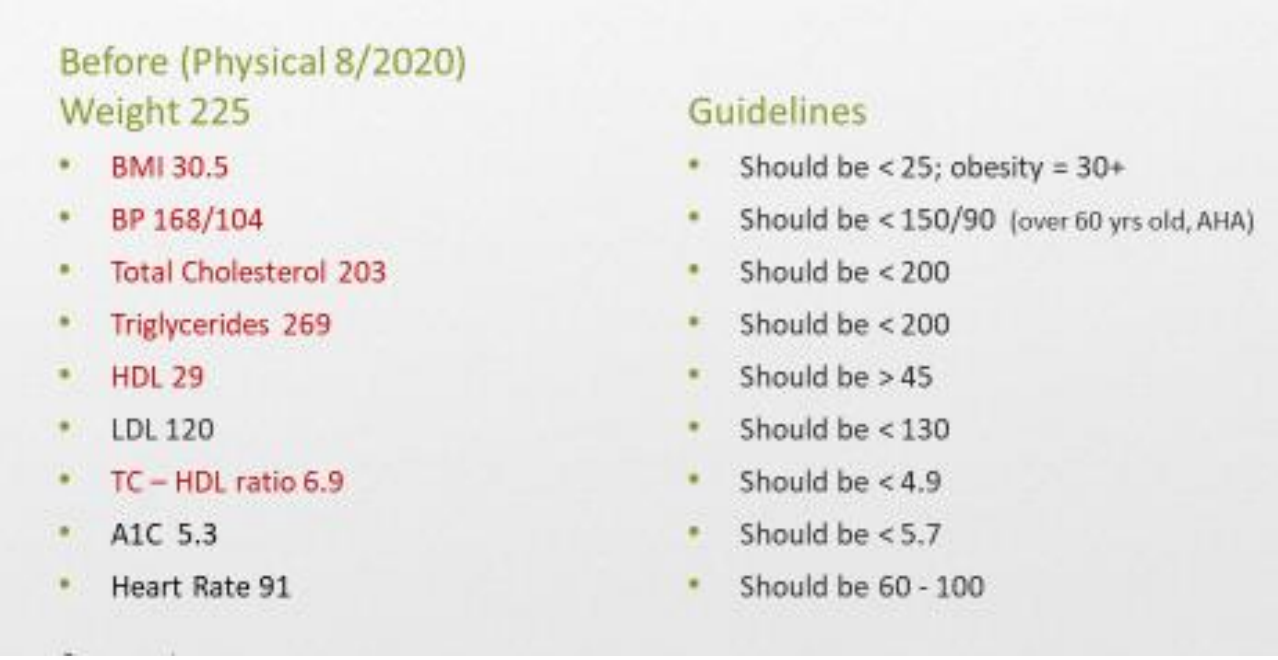
might be going in a bad academic direction, through lack of effort for example. Your half semester report card doesn't tell which.

A series of report cards over time might though. Consider a student with an A average in 8th grade, an A- average in 9th grade, a B average in 10th grade and a C- average on the first half semester report card in 11th grade. We see a trend. The report card suggests need for an intervention by the school, parents, community, or others to identify and address some issue or other.

Similarly, my 2020 annual physical numbers suggested an issue. What is was – lifestyle, individual biology or something else – remained to be determined.

Add to that my own idiosyncratic personality: I don't like to receive failing grades. I found myself annoyed more than concerned and determined to do something about it. I self diagnosed – always a bad idea – my problem as lifestyle and decided to lose weight, exercise more and see what happened.

My August 2020 numbers compared to the metabolic syndrome guidelines:

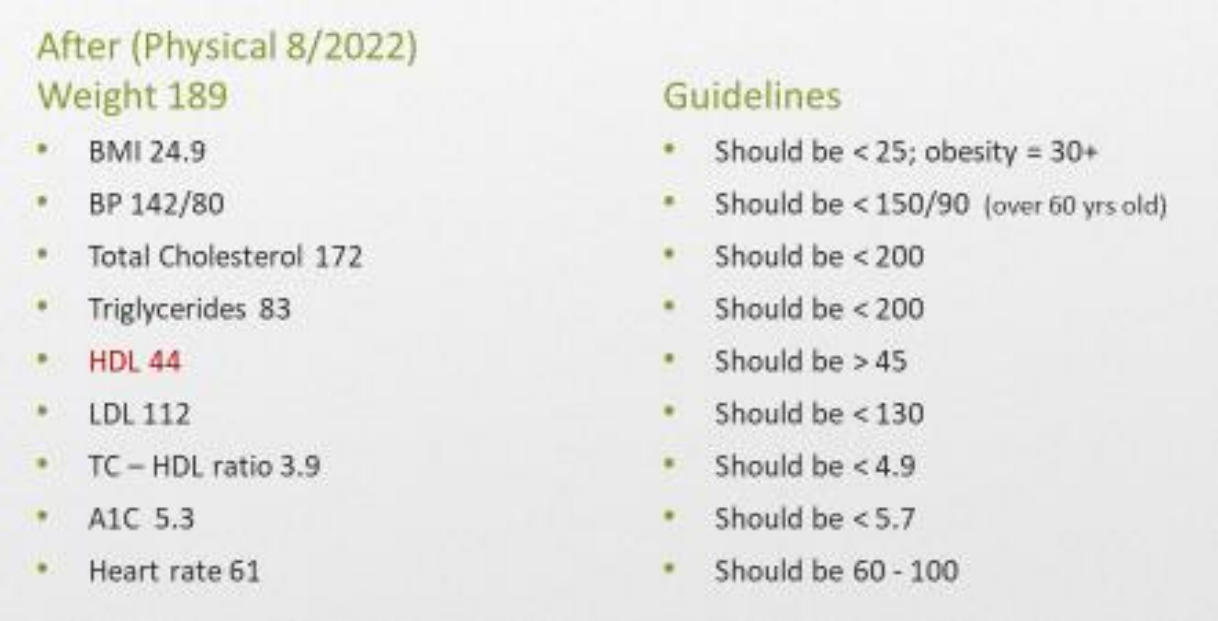


I put myself on diet-and-exercise program and lost about 40 pounds in a year. See the addendum to this chapter for details.

But the big question facing me: would the healthy habits, developed over a year, maintain themselves and keep me at a healthy weight at the 2 year anniversary? I know the 2 year failure rate of weight loss programs, well over 80% with some estimates as high as 97%.

Also, what would that metabolic profile look like 2 years later?

Here are the results from my August 2022 physical:



And here's the side-by-side comparison of all those numbers two years apart to show the remarkable impact of weight loss and exercise increase in one relatively easy-to-read chart.

Diet and exercise worked well to get me out of the metabolic syndrome.

It's a shame that cost, convenience, and other factors keep so many others from enjoying this success and the related good health / low healthcare costs.

Chapter summary

Diabetes accounts for up to 25% of all healthcare spending. Its incidence grows over time, along with the underlying causes: obesity, low quality caloric food consumption and insufficient exercise afflict many of us, perhaps a majority of Americans, perhaps a large majority.

Many afflicted folks progress through metabolic syndrome and / or prediabetes to full blown diabetes. Efforts to intervene behaviorally - typically referred to as lifestyle changes involving dietary improvements and exercise increases - generally fail, by some estimates up to 97% of the time.[45] They're

- Too expensive for average income Americans
- Too uncomfortable to maintain for years
- Too inconvenient
- Too dissonant with our normal lifestyles, TV watching for example.

New, promising medications are too expensive for widespread use, with 'widespread' meaning the 70 million currently obese Americans. Insurance companies balk at the cost.

I don't see a hopeful path forward. Instead, I see our diabetic population growing along with the associated healthcare costs.

A pessimistic end to a pessimistic chapter.

My calorie and cost spreadsheets

All data from Shaw's, Easton Massachusetts, October 2022. I made several trips to gather data.

In case you have trouble reading the spreadsheets below, the column headings are

- Item name
- Cost / package. The store publishes this.
- Servings / package. This is on the nutritional label of all packaged foods, or you can google it for fruits and vegetables.
- Calories / serving. Again, on the nutritional label. Google provides this information about other foods - calories / pound of apples for example, or calories in a medium apple.
- Cost / calorie. This is a simple division: cost / package divided by number of servings / package divided by number of calories / serving.
- # servings per meal. That's how much you put on your plate. You may choose 2 servings of spinach for example, or ½ serving of ice cream.
- Total calories = Again a simple calculation: the number of calories / serving times the number of servings on your plate.

[45] The Weight of the Evidence, Harriet Brown, Slate, March 24, 2015 https://slate.com/technology/2015/03/diets-do-not-work-the-thin-evidence-that-losing-weight-makes-you-healthier.html.

- Total cost = the cost / calorie for each food times the number of calories on your plate.

Item	Cost / package ($)	Servings / package	Calories / serving	Cost / calorie	# servings	Total # calories	Total cost ($)
Healthy breakfast							
2 jumbo eggs - range free	7.99	12	90	0.007398148	2	180	$ 1.33
2 pieces Arnold Multigrain toast	5.29	16	110	0.003005682	2	220	$ 0.66
Butter (Land o Lakes)	4.79	30	50	0.003193333	1	50	$ 0.16
1 banana	0.69	3	100	0.0023	1	100	$ 0.23
Black coffee	19.99	100	2	0.09995	1	2	$ 0.20
Total						552	$ 2.58
Healthy lunch							
Spinach salad	5.99	3.5	20	0.085571429	1	20	$ 1.71
Tomato	2.99	1	90	0.033222222	0.5	45	$ 1.50
Carrot	3.49	11	30	0.010575758	0.5	15	$ 0.16
Yellow Pepper	1.7	1	50	0.034	0.5	25	$ 0.85
Beets	3.99	2.5	50	0.03192	0.5	25	$ 0.80
Olive oil - Bertolli	7.49	33	120	0.001891414	0.67	80.4	$ 0.15
Balsamic vinegar - Filippo Berio	6.99	33	11	0.019256198	0.33	3.63	$ 0.07
.3 lb of chicken breast	3.99	1	748	0.005334225	0.3	224.4	$ 1.20
1 pita	2.99	8	90	0.004152778	1	90	$ 0.37
Apple	1.99	3	95	0.006982456	1	95	$ 0.66
Total						623.43	$ 7.47
Healthy dinner (Rice Bowl)							
2 cups brown rice	20.99	111	170	0.001112348	2	340	$ 0.38
Broccoli	1.99	1	154	0.012922078	0.33	50.82	$ 0.66
Summer squash	1.99	1	74	0.026891892	0.33	24.42	$ 0.66
Snap peas	2.99	3	35	0.02847619	1	35	$ 1.00
Green beans	3.29	4	25	0.0329	1	25	$ 0.82
Salmon	11.99	1	944	0.012701271	0.4	377.6	$ 4.80
Low salt soy sauce	3.29	20	20	0.008225	1	20	$ 0.16
Blueberries	2	1	229	0.008733624	0.5	114.5	$ 1.00
Strawberries	4.99	1	149	0.033489933	0.5	74.5	$ 2.50
Total						1061.84	$ 11.97
Total Daily Calories & Cost						**2237.27**	**$ 22.02**

Item	Cost / package ($)	Servings / package	Calories / serving	Cost / calorie	# servings	Total # calories	Total cost ($)
Typical breakfast							
Honey bran muffin (Shaw's)	$5.00	4	420	0.00297619	1	420	$ 1.25
Coffee	19.99	100	2	0.09995	1	2	$ 0.20
Cream (Coffeemate)	4.49	63	35	0.002036281	1	35	$ 0.07
Sugar (Domino's granular)	1.99	54	30	0.001228395	1	30	$ 0.04
Total						487	$ 1.56
Typical lunch							
Ham	7.99	1	885	0.009028249	0.25	221.25	$ 2.00
Cheese (20 slices / lb)	5.99	20	100	0.002995	1	100	$ 0.30
Sub roll	2.99	6	200	0.002491667	1	200	$ 0.50
Mustard (French's)	2.49	79	1	0.031518987	1	1	$ 0.03
Lettuce - ice berg	2.49	1	105	0.023714286	0.15	15.75	$ 0.37
Bag of chips	21.99	42	150	0.003490476	1	150	$ 0.52
3 Oreos	5.49	21	160	0.001633929	1	160	$ 0.26
Apple	1.99	3	95	0.006982456	1	95	$ 0.66
Coca cola	2.79	12	140	0.001660714	1	140	$ 0.23
Total						1083	$ 4.88
Typical dinner							
Regular pasta (Barilla)	2.99	8	200	0.00186875	1	200	$ 0.37
Pasta sauce (Prego traditional)	3.99	5	70	0.0114	1	70	$ 0.80
Ground beef - 80%	4.99	1	1152	0.004331597	0.25	288	$ 1.25
Grated cheese (Kraft parm)	5.99	45	20	0.006655556	1	20	$ 0.13
Green salad - Dole American	3	4	15	0.05	2	30	$ 1.50
Italian dressing (Ken's house)	3.99	16	120	0.002078125	1	120	$ 0.25
Canned peaches	3.49	7	100	0.004985714	1	100	$ 0.50
Ice cream (Friendly's)	4.99	9	210	0.002640212	0.5	105	$ 0.28
Beer (Bud) Walmart	8.27	6	145	0.009505747	1	145	$ 1.38
Total						1078	$ 6.46
Total Daily Calories & Cost						2648	$ 12.90

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Addendum: My battle with metabolic syndrome

A version of this is available from www.lulu.com as Gary's Guide to Weight Loss.

Foreword
Dr. David Mudd

Gary asked me to write a forward to his book while we were kayaking together. I told him I would be honored to do so.

I have worked for 30 years as a primary care physician in a mixed urban / suburban environment. Over these years obesity rates have skyrocketed. I have seen it in my own practice: young and old patients, blue and white collar, it doesn't matter. Far too many of my patients are heavier these days causing other health conditions to become more prevalent including diabetes, hypertension and heart disease.

I have had countless people come to me complaining of their inability to lose weight. The complaints are the same and the accounts of their food intake and exercise eerily similar. "I hardly eat anything" or "I eat the same amount I always have." Lacking hard data, I wonder about this.

When I ask about their activity level, they usually respond “I try to walk.”

They typically want to have their thyroid checked, assuming that there is a medical explanation for their weight gain and fatigue.

My message to them is always the same: “you need to cut back on your calories and become more active”. Unfortunately, we never have enough time together for me to understand their lifestyles, dietary norms and physical activity habits in enough detail. Invariably they return frustrated and unsuccessful.

Fewer than 1/10 patients actually make the changes necessary to lose weight and keep it off.

Patients such is Gary Fradin are few and far between but a joy to work with. Gary is the rare patient who understands nutrition and exercise and actively takes control of his own health. He formulated a plan to cut his calories and increase his activity level and enjoyed spectacular results, losing over 40 pounds and getting himself into good physical shape as well.

Gary summarized the process in this readable and informative book. His recommendations are science based, useful and appropriate. I heartily recommend it.

In fact, I plan to give this book to my own patients. Enjoy it and good luck!

Dr. David Mudd
Easton, Massachusetts
May, 2021

Preface

After Covid struck, after our lives turned upside down, after my business revenues fell by 50%, after all normal routines disappeared, my doctor told me I had metabolic syndrome and to lose weight.

I told him I was fit and healthy.

He repeated his order.

How to lose weight? Diet options ranged from A (Atkins) to Z (Zone). All claimed dramatic successes.

But all almost certainly fail over time. Research suggests that 97% of people regain their weight within about 3 years.[46] Here, for example, is Traci Mann from UCLA summarizing her group's study:

> "You can initially lose 5 to 10 percent of your weight on any number of diets, but then the weight comes back. We found that the majority of people regained all the weight, plus more."[47]

I didn't want to be one of the failures.

My doctor offered a nutritionist referral, which I postponed; I didn't like the odds, hate scheduling medical appointments and feared entering the modern diet culture even under the guise of organized medicine.

Instead, I decided to try on my own. I figured I could achieve at least the same dismal long- term weight loss result myself, and possibly do even better.

This chapter describes how.

The program isn't a unique, novel or brilliant but it's straightforward, practical and honest. You can easily adapt it to your own situation.

Just follow the steps, modify it to your own needs and give yourself time.

The Camera Adds 20 Pounds
Me, fit-and-healthy pre-weight loss

[46] The Weight of the Evidence, Harriet Brown, Slate, March 24, 2015 https://slate.com/technology/2015/03/diets-do-not-work-the-thin-evidence-that-losing-weight-makes-you-healthier.html.

[47] Dieting Does Not Work, Stuart Wolpert, UCLA Newsroom, April 3, 2007 https://newsroom.ucla.edu/releases/Dieting-Does-Not-Work-UCLA-Researchers-7832

Introduction

I’m not a doctor, nutritionist, dietician or exercise physiologist. I have no medical training.

Instead, I’m an economist. I measure things. Weight loss strikes me as a measurement problem:

- If you eat more calories than you burn, you gain weight.
- If you eat fewer calories than you burn, you lose weight.
- As you eat less, your metabolism slows so you need to exercise more.

Sustained, long term weight loss also incorporates a fourth, behavioral consideration:

- Do this all slowly enough to develop new habits. That increases your chance of long-term success.

This program incorporates all those issues.

As background, I’m a 68-year-old, 72-inch-tall man. I weighed 225 pounds in my doctor’s office on August 13, 2020.

I followed this program for 9 months and weighed 185 at my Sunday morning weigh-in April 4, 2021. I had lost 40 pounds over 36 weeks, about a pound per week on average.

It wasn't very difficult – more a task to accomplish than a mountain to climb - but I was hungry much of the time, especially at the beginning. That feeling dissipated as my new eating habits became ingrained and my body adjusted to its new setpoint. Dissipated but didn't disappear.

I'm optimistic about long-term success, optimistic that my habits have changed enough to maintain my new weight for years to come. Cautiously optimistic that is, not blindly. After all, 97% of people who lose weight ultimately put that weight back on.

We'll see. The future is a long time.

Step 1: Calculate your daily calorie needs.

There's a weight loss mantra 'eat 500 calories less each day and lose a pound a week'.

Maybe true – I don't know - but I needed a starting point. 500 calories less ***than what***? No idea. I hadn't tracked my previous consumption.

I initially tried cutting cream from my morning coffee and dessert from lunch and dinner. But I didn't use the same amount of cream every day. Nor did I eat dessert every day but when I did, the type and size varied. Did that cut 500 calories? No idea.

I tried eating smaller portions. Small enough? Too small? Again, no idea. I only knew that I felt hungry. I worried that if I felt hungry without seeing results, I'd get frustrated and stop.

I needed a plan.

So instead of eating 500 calories *less* than some unknown number, I decided to calculate how many calories I *should* eat each day to lose a pound a week, an absolute number.

I googled 'calories per day to lose weight' and found lots of websites that base their estimates on age, height, weight, gender and daily activity level. Most suggested roughly the same amount – 2300 calories per day to lose a pound a week from that 225 pound starting point. (Your own amount will vary.)

The agreement among websites gave me a reasonable degree of confidence.

I aimed for 2200 calories per day, slightly below the 2300 estimate to allow for measurement errors.

Interestingly, 2200 calories per day isn't a starvation diet. Far from it. In fact, the US Department of Agriculture estimates that the average American consumed 2234

calories per day in 1970.[48] My 2200 calorie target simply mimicked America's pre-obesity food consumption level.

Three thoughts on eating according to your daily calorie estimates and watching the impact on your weight:

1. Remember to recalculate as you lose weight. Your calorie needs drop.
2. Set reasonable weight loss goals – neither too fast nor too much – to avoid frustration.
3. Weigh yourself on the same scale, at the same time, every week. This generates the most consistent data, necessary to keep you on track. I choose Sunday mornings, first thing. Those are the weights I show in the **Results and Lessons** chapter.

I started thinking 'if I can get down to 215, I'll be successful'. Then, upon reaching 215, I wondered about losing another 5 pounds. Then I aimed for 200, a nice round number. Then 195, a 30-pound loss and enough to write a book. Maybe others could benefit from this program?

But losing 40 pounds sounded better than 30, so I aimed for 185 and made it. Low enough! My doc said to stop here.

Remember that my initial goal wasn't 185. It was 215. Try to define success for yourself as a goal you can reasonably reach in a relatively short period, something that will make you feel proud. Then let the future take care of itself as you gain confidence through success.

Step 2: Divide your daily calorie target into 3 meals and a snack.

I used this rule-of-thumb for my initial 2200 calorie per day program.

Breakfast - 400 calories (18% of total daily calories)

Lunch - 600 calories (27%)

Dinner - 800 calories (36%)

Snacks or dessert - 400 calories. You can add these to your breakfast, lunch or dinner.

Your own calorie target and meal amounts may differ.

[48] Wells and Buzby, US Food Consumption Up 16% Since 1970, Economic Research Service US Department of Agriculture, November 1, 2005 https://www.ers.usda.gov/amber-waves/2005/november/us-food-consumption-up-16-percent-since-1970/

You'll find calorie estimates for specific foods on packages or online. Simply google 'calories in a medium potato' or 'calories in a cup of blueberries' or whatever. It's easy and close enough for our purposes.

Meal timing: I ate according to the clock throughout this program and expect to in the future:

- Breakfast at 9:00
- Lunch at 1:30
- Dinner at 6:30. Regular as clockwork.

Try not to eat whenever you feel hungry because those feelings come and go. Stick to the clock. It's honest, reliable and will keep you on track.

See the discussion of hunger below, for more on this.

Food choices: I learned several things through trial and error about my own reaction to food groups. You probably will too, though perhaps different lessons.

First, I feel fuller, longer eating vegetables probably because of their high fiber and water contents. I eat lots of vegetables these days.

Second, I prefer healthy food tastes. I look forward today to my English muffin, peanut butter and banana breakfast as enthusiastically as I had previously anticipated pancakes with syrup or eggs with bacon, sausage and toast.

In fact, I no longer want those overly-sweet, overly-salty, overly-filling, low-fiber meals, not because they're so high in in calories but because they make me feel lousy afterward. They sit like a rock in my stomach and leave me stuffed and thirsty, then surprisingly hungry relatively quickly.

Third, I don't miss those previously routine, calorie-rich tastes, things like cream in my morning coffee, cheese and crackers between meals or rich desserts after dinner. I now prefer blueberries, raspberries or strawberries for dessert, sometimes with a drop of honey on top. Berries are sweet and delicious, and I feel good after eating them.

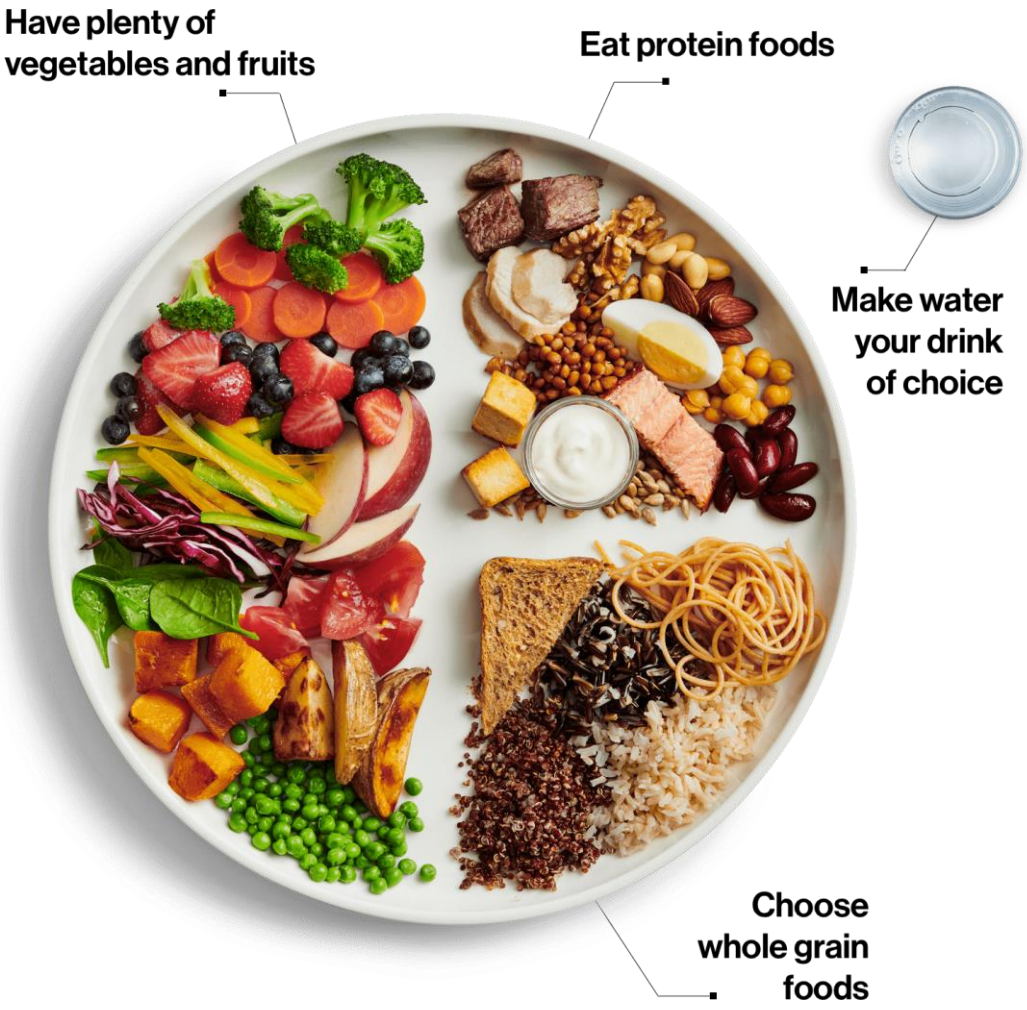
Plus I don't have that sugary thirst like I used to after eating cookies or cake.

My experiences mirror recommendations from 2 thoughtful sources. Michael Pollan, New York Times contributor, best-selling author, and Berkeley professor famously advises people to "Eat food. Not too much. Mostly plants." Consider each phrase.

- **"Eat food"** means eat real, identifiable farm products like fruits, vegetables, whole grains, meat and fish. Avoid ingredients you can't pronounce and foods your grandmother wouldn't recognize.
- **"Not too much"** means stick to your daily calorie limit.
- **"Mostly plants"** means lots of fruit and vegetables.

The Canadian Food Plate, photo below, suggests the proportion of each food group – plants, grains and proteins – to eat daily. Remember that nuts, beans and legumes count as proteins.

About half your plate should be fruits and veggies – aim for lots of different colors - a quarter protein and another quarter whole grains.



Eat food. Not too much. Mostly plants.

Tastes and habits: When people say, ‘I can’t drink coffee without sugar’ or ‘I can’t eat an egg without salt’, I wonder if they remember what got them into their overweight situation in the first place.

Changing eating habits is a process, both challenging and rewarding. The good news is that you really can change.

The bad news is that it takes time. Most people require at least 2 months for a new taste preference to become fully automatic though some people take up to 8 months

according to research.[49] Understand and accept this. Give yourself time to change your habits.

This habit development process may suggest why our modern diet industry so often fails people. It operates within two mutually exclusive constraints.

- First, it has to deliver weight loss results quickly enough that people don't drop out and post negative reviews online.
- But second, long term sustained weight loss and new habit creation takes a long time.

You can't generate fast results slowly! That's why I didn't want to get involved with it. I wanted a program without commercial or time pressure.

Hunger. Eating fewer calories per day makes you hungry. That's simply reality. I learned to differentiate three types of hunger.

*** Hunger as not feeling completely full.** I had previously enjoyed eating until I was 'pleasantly satisfied'. I don't get that feeling anymore.

Instead, I feel 'full enough' these days, not exactly hungry but not completely full either. I could happily eat an additional muffin at breakfast, a bigger sandwich at lunch, an extra helping at dinner or a second bowl of fruit in the evening. But I don't.

I've learned to embrace feeling 'full enough' when I reach my calorie limit per meal. It's my new normal, my new habit. Today it feels right.

You can adapt to this new feeling too. Just give yourself time. And remember your goal.

*** Hunger as deprivation**, actual physical need. This is sometimes called 'belly hunger' as opposed to 'head hunger', below.

I wasn't worried about physical deprivation as long as I ate every 4 – 5 hours. I knew that my 2200 calorie per day program was sufficient for good health; the 1970 era US food experience proved that. Two hundred million Americans ate that way every day. End of story.

Some people, of course, might have special nutrition or health issues. I can't speak to those. Still not a doctor.

***** Head hunger differs from **belly hunger**. Head hunger goes away when you think about something else. Belly hunger does not.

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[49] Grohol, Need to Form a New Habit? Give Yourself At Least 66 Days, PsychCentral, October 7, 2018 https://psychcentral.com/blog/need-to-form-a-new-habit-66-days ; UCL News August 9, 2009 Interview with Phillippa Lally https://www.ucl.ac.uk/news/2009/aug/how-long-does-it-take-form-habit

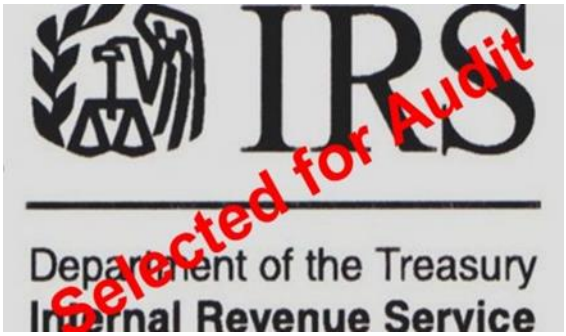
Try this thought experiment to understand the difference: visualize a delicious burger or juicy steak or moist chocolate cake or juicy mango. Imagine the taste. Picture it. Anticipate the sensation as you bite in.

Hold that thought.

Feel hungry? It's head hunger.

Now think of an IRS audit or root canal surgery. Visualize it. Hold onto it. Lose the hungry feeling?

Causes head hunger



Removes head hunger

Head hunger is a mental state. You can feel it equally few hours after either a big or small meal. When you feel it, think about something else. Easier said than done of course.

Food costs. Vegetables, per calorie, cost more than most other food groups due to various food subsidy and tax programs. Understand this and be prepared for a food budget increase.

Restaurants pose a problem for calorie restricted diets. Here are four suggestions that might help:

- Split a main course with someone and complement each portion with a side salad.
- Ask the restaurant to bring a doggie-bag containing half of your meal ***when they serve it***. I find this works better than attempting to estimate and eat half first, then asking for a doggie bag later.
- Stick with salads and protein toppings. Careful with the dressing. This option might make the restaurant experience less special, but it will make your calorie intake more predictable.
- Pay attention to drinks, both alcoholic and non. Wine has about 120 calories per glass, beer 150, gin and tonic 170, Long Island iced tea 280 and Margaritas up to

450.[50] Coca-Cola classic has 140 calories per 12 ounces, orange juice about 110 per cup and chocolate milk about 200. Those all count toward your daily total.

Cheating: Try not to. You'll only sabotage your progress and depress yourself at your next weekly weigh in. Be honest with your measurements and anticipate that you'll be on this program for several months at least, maybe for life (maintenance period).

Summary: Eat according to the clock and follow your grandmother's advice: eat the foods she would approve, don't eat foods she wouldn't recognize and control your portions.

Allow yourself time to develop new habits.

****

I invented some recipes, unexpected food combinations that satisfied me. Several became my new habits. If you like any, use them. Feel free to invent your own!

Breakfasts

Toasted English muffin with peanut butter plus a banana with almond butter. I eat this most frequently, perhaps 5 times per week. Cut a whole wheat English muffin (100 calories) in half and toast both halves. Then spread one tablespoon of salt-free peanut butter – about 100 calories – onto the 2 halves, about half a tablespoon per half. I don't add jam because I don't like very sweet tastes for breakfast, but that's just me.

Then cut a ripe banana, about 100 calories, in half and spread one tablespoon of almond butter – about 100 calories - onto it, again half a tablespoon per half. I prefer almond butter to peanut butter with bananas but again, my own preference.

Poached eggs on oatmeal. Instead of 2 scrambled eggs and 2 pieces of toast for breakfast, I substituted 2 poached eggs over oatmeal with a splash of ketchup, again my own taste preference. Oatmeal instead of wheat, one grain for another. Make it thick. One-third cup of steel cut oats is 170 calories, two jumbo eggs total 180.

Sometimes I add tomato slices or steamed broccoli. Tasty. Other times I melt Swiss cheese into the oatmeal, then put one egg on top. Delicious!

Plenty of other breakfast options exist within that original 400 calorie constraint. You're only limited by your imagination.

Lunch

[50] Best and Worst Booze While Dieting, Carolyn Williams on cookinglight.com https://www.cookinglight.com/healthy-living/weight-loss/best-alcohol-drink-on-diet

I often eat leftovers for lunch, generally vegetables with some protein and fruit for dessert. Sometimes I add peanuts, cashews or butter beans - I really like butter beans - depending on our refrigerator's contents. Remember to estimate your calories honestly when you do this.

Here are some creative combinations that I enjoyed.

Tuna fish sandwich with pickles and a chocolate banana smoothie. I use chunk light tuna, only 90 calories per can, oilier than solid white so requiring less mayonnaise; add about ½ tablespoon, 50 calories. Then 2 slices of bread @ 100 calories each, a tomato slice and lettuce with a side of pickles for a 360 calorie, filling sandwich. Maybe add a splash of mustard (!) for flavor.

Then, assuming your taste buds require (mine generally do), make a frozen banana smoothie. One cup of skim milk (100 calories), a banana (another 100) and 2 tablespoons of Ovaltine (40 calories). I prefer Ovaltine to other chocolate syrups, but again, that's just me. Total about 240 calories, making your tuna sandwich plus smoothie a tasty 600 calorie lunch.

Beans or mussels in tomato sauce over steamed vegetables. One 8-ounce packet of frozen mussels (I use PanaPesca) contains 175 calories; 3 cups of broad beans about 150 calories. One cup of tomato or marinara sauce has about 120 calories depending on the brand. Put this modified bolognaise sauce over steamed zucchini, broccoli or cauliflower and sprinkle with parmesan cheese for a delicious and filling 300 calorie lunch. Enjoy a couple pieces of fruit for dessert.

I sometimes substitute chicken, garbanzo beans or left-over steak.

And I sometimes, though rarely, put this over a cup of pasta, about 200 calories.

Plenty of options to try.

A word about vegetables and salad. Per volume, vegetables contain fewer calories than most other foods. It's hard to overeat spinach or broccoli!

Try mixing three cups of raw spinach (25 calories) with a cup of raw beets (45 calories), a large tomato (25 calories), left over veggies from your refrigerator and any other vegetables you have on-hand. Then top with your favorite cheese, nuts or protein.

Careful with the dressing though. I limit myself to 1 tablespoon, generally of Italian or Greek dressing, 50 - 75 calories depending on the brand. Sometimes I make my own, mixing olive oil, vinegar and mustard or horseradish.

A word about fruit. I normally eat at least 3 pieces of fruit every day in addition to my frequent morning banana. I'm partial to apples, oranges, clementines, strawberries, raspberries and blueberries. We're not, in my family, big melon, pineapple or mango people but if we were, I'd include those too. It's a matter of taste again.

Dinner

We enjoy broiled vegetables at almost every dinner during the winter and grilled veg in the summer, generally broccoli, cauliflower, green beans, Brussels sprouts or eggplant. I char them slightly and sometimes sprinkle lightly with salad dressing. ('Lightly' means about a tablespoon per pound of veg.)

We typically eat this as a side dish with grilled meat, chicken or fish, most often fish. Sometimes my wife and I split a sweet potato too, about 80 calories per half. That adds natural sweetness to the meal.

Remember to control your portions! Steak has more calories per pound than chicken; salmon more than white fish.

We also try more creative dinners too.

Tomato sauce with turkey or beans and vegetables. This becomes a stand-alone stew; no pasta required. We use low fat ground turkey, a low calorie / low salt pasta sauce (read the labels) and add broccoli, cauliflower, peas, onions, mushrooms, peppers or fresh tomatoes. Then flavor with red wine.

We sometimes substitute butter beans for the turkey.

One issue with this meal: estimating calories accurately, especially leftovers. I generally add up all the calories in the entire batch, then estimate portion size – a quarter, a third, etc. Close enough for our purposes. Overestimating your portion today leads to underestimating it tomorrow or vice versa.

I then label the leftover calories in the fridge because I forget otherwise.

Baked feta and vegetables. Cut a block of feta cheese into 300 calorie chunks then bake or broil with red onions and cherry tomatoes. Sprinkle lightly with Greek salad dressing. Add a glass of chilled white wine, about 100 calories.

We sometimes add or substitute tofu for feta. Same idea but a different flavor.

Homemade oatmeal muesli, a sweet, Swiss-themed change from veggies and protein. Mix together 1/2 cup of steel cut oatmeal (255 calories), ½ cup of unsalted cashews or peanuts (320 cal.) or almonds (414 cal), a cup of blueberries (85 cal.), a cup of strawberries (50 cal.) and a banana (100 cal.). Total about 800 calories depending on your specific ingredients. Top with yogurt or honey, another 70 calories or sprinkled coconut. Eat hot or cold.

Snacks and Deserts

Some of my favorite quick-and-easy snacks include:

- Baked apples with cinnamon

- Blueberries or raspberries. 85 cal. per cup each + 1 tablespoon honey, 70 cal. equals 155 calories total
- Yogurt with Ovaltine. ½ cup fat free, sugar free yogurt, 60 cal. + 2 tablespoons of Ovaltine, 40 cal. = 100 calorie version of chocolate mousse. OK, not *exactly* mousse but it's pretty good. I sometimes double this if I'm ahead on my daily calories. (Haven't tripled it yet.)

You'll invent your own recipes. Write everything down so you remember which worked best for you.

Step 3: Go for a daily brisk walk.
or get some other form of daily exercise

Our metabolisms slow down as we eat fewer calories. To counter this, exercise every day. I normally enjoy a brisk daily walk, equal emphasis on **brisk** and **daily**. 'Brisk' means you can *just barely* keep a conversation going. Walk with a friend to find your own speed using this metric. (Check with your doctor to make sure you're healthy enough first.)

Our frighteningly unfashionable hero in his winter walking outfit, 2021

I average about 420 minutes – 7 hours – of brisk walking per week. I measure minutes of exercise per day instead of steps or total walking distance to allow for variety - swimming, bike riding, exercise classes, weight-lifting, cross country skiing or similar activities.

Interestingly, both the CDC and British National Health Service recommend *at least* 150 minutes per week of brisk exercise for everyone. More is better. That weekly 420

minutes of brisk walking helped keep my metabolism from slowing down as I ate fewer calories. The simple form at the end of this book helped me stay on track. Try it yourself.

Daily exercise – walking in my case - like everything else in this book, becomes a habit. You miss it on days you don't go. Allow yourself time for this habit to develop.

I like to measure both my daily exercise time and walking distance. The goal is to maintain at least, and hopefully increase, both. Various smart phone apps can help.

One day, early in this program, I walked 4 miles in 70 minutes, about 17.5 minutes per mile, finishing tired and certain I couldn't go farther or faster. Six months later, on a mid-February walk, I averaged 15:30 per mile for 5 miles, equally certain that I couldn't go faster … but pretty sure, this time, that I could go farther. (I actually went 7 miles a week later though at a slower 16:30 pace.)

Some people prefer to track total daily mileage or total daily steps. These are different ways to measure the same thing. I prefer exercise minutes since I can plan and control these, but again, just my preference. As long as you walk briskly during your exercise minutes, any measure can work.

One trick that keeps me motivated, even enthusiastic about walking every day: I listen to novels, generally long ones that keep me engaged. I prefer historical fiction and mysteries but again, personal preference.

I've walked with Winston Churchill during the Blitz of London, young Nigerian intellectuals as they navigate life, Sherlock Holmes, seafaring merchants, unscrupulous criminals, clever detectives and many others. I look forward each day to reconnecting with my audio friends and often – oddly – feel sad when each book ends. Listening while walking has become another habit, one that I increasingly enjoy.

Confessionary addendum: I know that I should add strength training to my exercise regime. I keep meaning to start but, truth be told, I never enjoyed lifting weights or doing sit-ups. Maybe I'll start tomorrow.

Probably not.

Step 4: Write *everything* down.

Write down your food consumption after every meal and snack, and your exercise time (or whichever exercise metric you choose) every day. That keeps you on track to achieve your goals.

The forms below can help. Completing them becomes another habit. It takes a minute or so. I expect to continue this for years since I plan to stay in the 185 pound weight range for a long time.

Writing down your food consumption each meal also makes you think twice about what you eat. It acts as a speed bump, forcing you to ask ‘Do I really want to use this many calories on this food?’ I found it a useful exercise.

Weight I weigh myself first thing every Sunday morning, always on the same scale. That’s my ‘official’ weight though I confess to checking more frequently. I worry, slightly, that daily weigh-ins will drive me crazy, or, more likely, my wife. I’m already obsessive enough!

Beware of salt and water retention at your weigh-ins. Eating a salty evening meal – feta cheese or pasta sauce for example – can increase my weight by 2 to 3 pounds the next morning. Factor this into your calculations and, perhaps more importantly, watch your daily salt consumption. Harder to do than say unfortunately.

Meals You can use the attached simple form to track your daily calories. You’ll see patterns emerge pretty quickly. Plus this will keep you from overeating in response to head-hunger. I’ve inserted a week of meals simply as an example. You can set up these forms very easily in Excel and design your own meals.

Date	Breakfast	Lunch	Dinner	Snack(s)	Total
Sun	Eng Muffin (100) Pnut butter (100) Banana (100) Almond butter (100) Total 400	Salad bag (50) Tomato (30) Chicken left overs (300) Italian dressing (75) Apple (100) Total 555	Turkey stew (ground turkey, pasta sauce and veg) (750) Salad and dressing (100) Pineapple (120) Total 970	3 Clementine (105) Yogurt & Ovaltine (100) Blueberry + honey (150) Total 355	2280
Mon	Oatmeal (170) 2 jumbo eggs (180) Ketchup (20) Total 370	Cauliflower left overs (75) Butter beans (150) Dressing (75) Chicken (150) Apple & cashew butr (190) Total 640	Salmon (300) Broccoli (100) Salad (50) & Dressing (75) Wine (100) 3 clementines (105) Total 730	Bana & Alm butr (100) Blueber & honey (150) Yogurt & ovaltine (200)	2190

Tues	Eng Muffin (100) Pnut butter (100) Banana (100) Almond butter (100) Total 400	Broad beans (200) Steamed veg (150) Dressing (75) 2 sm oranges (180) Total 605	Cod & panko (450) Salad & beans (200) Dressing (75) 1 slice bread (100) Total 825	Blueberries & Activia (220) Orange (100) Apple (100) Total 420	2250
Wed	Eng Muffin (100) Pnut butter (100) Banana (100) Almond butter (100) Total 400	Impossible burger (270) 2 x Bread (200) L & T, mustard, pickle (30) Apple (100) Total 600	Oatmeal (170) Cashews (320) 2 cups frozen fruit (140) Honey (70) Total 700	Baked apple & cinn (200) Yogurt & Ovaltine (200) Total 400	2100
Thurs	Eng Muffin (100) Pnut butter (100) Banana (100) Almond butter (100) Total 400	Tuna (90), mayo (50) 2 x Bread (200) Pickles, L & T (40) Skim milk & banana (200) Ovaltine (40) Total 640	Swordfish (400) Broccoli (200) Green beans (100) Dressing (75) Blueberries (85) Total 860	Apple (100) Orange (100) 2 x Clem (70) Total 270	2170
Fri	Oatmeal (170) 2 jumbo eggs (180) Ketchup (20) Tomato (30) Total 400	Broccoli (100) Green means (50) Swordfish (200) Dressing (50) Pear & orange (200) Total 600	Baked feta (300) Tomatoes, onions (50) Broccoli (100) Potato (200) Wine (100) Total 750	Blueberries & honey (180) Yogurt & Oval (200) Clem (100) Total 480	2230
Sat	Oatmeal (170) Swiss cheese (100) 1 egg (90) Ketchup (20) Total 380	Tuna (90), mayo (50) Eng muffin (100) Pickles, L & T (40) Skim milk & banana (200) Ovaltine (40), Apple (100)	Beans (200) Rice (200) 1/3 cup cashews (250) Salad and dressing (150) Blueberries (100)	Baked apple & cinn (200) Yogurt & Oval (100) Orange (100) Total 400	2260

		Total 580	Total 900		

Exercise Use this form to track your daily exercise, total mileage or steps. If you track exercise minutes, focus on brisk walking minutes, the time your heart beats more quickly than normal so you can just barely keep a conversation going.

Exercise minutes per day, mileage or steps

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Total
date								
date								
date								

Results and Lessons

This program worked for me. It may also work for you. No promises but I hope so.

If you decide to try, give it an honest effort. Stick with it for at least 6 months, long enough to develop new food habits.

You'll likely be pleased with the results.

Below, a sample of my own experience over 3 months, enough to make the point.

Weekly Food Consumption, Exercise and Weight Change
4th quarter, 2020

Week Ending Date	Average Calories Consumed per Day	Total Minutes Walked per Week	Sunday Morning Weight	Weight change, pounds, rounded
Oct 4	2120	465	207	
Oct 11	2020	535	206	-1
Oct 18	2230	465	204	-2
Oct 25	2110	550	203	-1
Nov 1	2300	360	202	-1
Nov 8	2019	475	201	-1

Nov 15	2087	455	200	-1
Nov 22	2657 (Thanksgiving)	580	198	-2
Nov 29	2069	540	199	+1
Dec 6	2157	320	196	-3
Dec 13	2452	485	195	-1
Dec 20	1999	340	197	+2
Dec 27	2400	410	196	-1
Jan 3, 2021	2332	600	195	-1
Averages over 14 weeks	2210	470		-.9 **lb. per week**

Plan Design Overview and Issues

Let's start with an analogy.

Clayton Christensen, a professor at Harvard Business School best known for studying business innovation - and particularly disruptive innovation - wrote an insightful article about the US educational system in the May 11, 2014 Boston Globe.[51] As you read some highlights from that article, consider the analogy to our healthcare system.

- *Tuition costs have been ballooning faster than general inflation…and what do we get in return?*
- *Nearly half of all bachelor's degree holders do not find employment or are underemployed upon graduation. At the same time, employers have not been satisfied with degree candidates.*
- *Two recent Gallup polls showed that although 96% of chief academic officers believe they're doing a good job of preparing students for employment, only 11 percent of business leaders agree that graduates have the requisite skills for success in the workforce.*
- *And this is all occurring while higher education leaders were convinced that they were innovating all along.*

Now let's substitute 'healthcare' for 'education' and rewrite:

- *Premiums have been ballooning faster than general inflation…and what do we get in return?*
- *Lower life expectancies, higher infant mortality and poorer access than other countries.*
- *At the same time, employers have not been satisfied with broker services.*
- *A recent poll showed that although most brokers believe they're doing a good job of developing benefit strategies and communications, only about half of business leaders agree that brokers do a good job implementing and executing desired programs.*
- *And this is all occurring while brokers are convinced that they were innovating all along.*

[51] Clayton Christensen et al, Thank You MOOCS, Boston Glove, May 11, 2014

The poll in question was Zywave's 2013 study of customer satisfaction with broker services that received 5500 responses. Some highlights: [52]

- Creates strategic plan that aligns with company goals: **43% unsatisfied**
- Offers employee benefits and consumerism communication / education: **41% unsatisfied**
- Assists with creating or maintaining a workplace wellness program: **66% unsatisfied**

Part of the problem comes from our employer based health insurance distribution system. We are the only major advanced, industrialized country that uses employer based health insurance as the primary mechanism of financing healthcare. Other countries use employer based coverage – if they allow it at all – to supplement the national health insurance system.

We, in the US, use public programs like Medicaid and Medicare to supplement employer based coverage, exactly the reverse of everyone else. If you can get health coverage through your employer, you (generally) cannot get public coverage. How does employer based primacy impact our overall healthcare system?

Princeton economic professor Uwe Reinhardt answered that question in his New York Times piece 'The Culprit Behind High US Health Costs' in 2013. [53] Here are some direct quotes:

- *Most health-policy analysts I know regret that employers appointed themselves their employees' agents in the markets for health insurance and health care*
- [Employers are] *the sloppiest purchasers of health care anywhere in the world. For more than half a century, employers have passively paid just about every health care bill that has been put before them, with few questions asked.*
- *One reason for the employers' passivity in paying health care bills may be that they know, or should know, that the fringe benefits they purchase for their employees ultimately come out of the employees' total pay package.*
- *In a sense, employers behave like pickpockets who take from their employees' wallets and with the money lifted purchase goodies for their employees*
- *[Carriers] are merely the conduits for the employers' wishes.*

[52] This study was summarized at the Massachusetts Association of Health Underwriters annual 'Benefest' in a presentation by Sarah Lucas of Marshberry entitled 'Trends and Best Practices in Employee Benefits Agencies'.

[53] Uwe Reinhardt, The Culprit Behind High US Health Costs, NY Times, June 7, 2013

- *When agents perform poorly, one should look first for the root cause at the principals' instructions.*
- *a decade of health care cost growth under employment-based health insurance has wiped out the real income gains for an average family with employment-based health insurance.*

Reinhardt then provided his data. In 2013, for an average family of 4, employer based health insurance cost $22,000, up $10,000 since 2003, compared to median family income of $55,000. He then suggests

- *One must wonder how any employer as agent for employees can take pride in that outcome*

I would extend that query to brokers, echoing the Christensen and Zywave points above.

Over time we developed more and more 'fill in' programs to cover people excluded from the employer based system – old people, unemployed people, veterans, children and others. Combining and coordinating these various programs leads to confusion, inefficiencies and costs.

One confusing consequence of employer based primacy and myriad fill in / supplementary programs, for example, is that our system treats people differently based on non-health factors, like who they are or where they work. Unlike other advanced countries, we have different systems and rules for

- Full time employed people
- Part time or low income people
- Very poor people, provided they are also either **i** children, **ii** blind or disabled, **iii** elderly, **iv** mentally ill, **v** pregnant women or **vi** mothers (if they don't fit into one of these six categories, they are treated like 'part time or low income people'. Understand?)
- People over 65 years old
- Young people who don't otherwise qualify for health insurance
- Military veterans provided their medical problems are 'combat related' and
- People with kidney disease, among others.

As you move from group to group – in other words, as your economic conditions change (generally) - you face different medical access rules, different financing rules and tons of paperwork. This does nothing to improve health and adds no efficiencies to our system.

We, in other words, base our healthcare financing and access systems on non-health related categories of people. Since the groupings are arbitrary, much more a function of interest group lobbying than healthcare distribution efficiency, compliance becomes extraordinarily difficult: compliance experts can't apply logic or reason to regulations. Instead, they must memorize or continuously consult the regs. This makes absolutely no medical or economic sense except, perhaps, to the favored business interest groups.

It only adds overhead, inefficiencies and costs to the system.

Complexity and confusion add costs more in the US than in other countries

Consider the relative inflation rates in the US and some other advanced countries. Inflation, of course, is driven by many factors, only one of which is systemic complexity. But it's difficult to design rational, cost-cutting, efficiency-promoting reform on top of an inefficient, irrational structure.

I use 2003 as my comparison basis because that was the year we introduced tax advantaged deductibles, designed to reduce unnecessary utilization and costs. Policy makers in the W. Bush administration figured that if patients pay with their own money they'll be more frugal and less wasteful. That was a big change from the traditional first-dollar-coverage in managed care that many saw as promoting unnecessary care.

	2003 healthcare spending	
US	$3788 per capita	
Canada	$2054 per capita	US spends 1.84x as much
United Kingdom	$1344 per capita	US spends 2.82x as much
France	$2093 per capita	US spends 1.81x as much
Germany	$2943 per capita	US spends 1.29x as much

	2011 healthcare spending	
US	$8508 per capita	
Canada	$4522 per capita	US spends 1.88x as much
United Kingdom	$3405 per capita	US spends 2.50x as much
France	$4118 per capita	US spends 2.07x as much
Germany	$4495 per capita	US spends 1.89x as much

From passage of the Medicare Modernization Act in 2003 at least under passage of the Affordable Care Act in 2010, our relative healthcare spending position has worsened vis-à-vis other countries. We not only spend *more* than these countries but, on average over time, we spend *more* more.

An underlying problem, at least from the broker or 'benefits advisor' perspective is that the enormous complexity of our healthcare system leads brokers to become expert at compliance, not at healthcare or healthcare systemic efficiency. In fact, 'health' insurance brokers today need understand nothing about 'health', only about compliance, to have successful, financially lucrative careers.

But compliance, as I suggested above in the discussion of Christensen and Reinhardt, does nothing to control costs or improve systemic value. Benefits advisors who *only* advise about compliance provide far less value to their clients than they could.

This was made poignantly clear to me one day in a lecture. I asked an experienced broker why she attended, as her agency normally didn't contract with me. Her response:

> *I sell CDH plans, understand HSAs, HRAs, deductibles, FSAs, networks and all the rest.*
>
> *But I recently switched employer, and I now have a high deductible plan…*
>
> *And **I** don't know how to use it!*

Consumer engagement to the rescue … or not

My somewhat depressing response to her comment: if the pros don't know how to navigate our healthcare system for themselves – don't know which services to use, which are wasteful and harmful – how much can they help their clients? Too often, their compliance advice only helps their clients access unnecessary, inappropriate or wasteful services, with up to some 40 or 50% of all healthcare spending going to services that do nothing to promote health.[54] The compliance focus only promotes easier access to care, much of which is unnecessary.

Brokers, and far too often also their clients, lack the tools to differentiate necessary from unnecessary interventions. That's the real impact of the broker comments quoted above.

Indeed, today's 'consumer engagement' emphasis falls into the same quagmire as the rest of our system. 'Consumer engagement' to health insurance brokers means knowing deductibles, plan design details, tax implications and the like. Knowing these things does not decrease costs, waste, unnecessary care or improve patient outcomes.

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[54] Several scholars at Dartmouth Medical School, notably Elliott Fisher and John Wennberg, have written extensively about this. Shannon Brownlee's excellent Overtreated provides plenty of detail. I'll belabor this point myself later in this book. The 'up to 50%' estimate is mine, not theirs.

But better outcomes are (almost) always cheaper than poorer outcomes!

Healthier people cost our healthcare system less, and the more efficiently our system turns people from *un*healthy to healthy, the less we spend on them. Poorer outcomes – infections, returns to operating tables, ineffective medications, high false positive test rates etc – always cost more. (Yes, I know that MRI costs vary significantly. But no one wants the cheapest unnecessary MRI.)

That's why the medical community, as opposed to the brokerage community, defines consumer engagement as knowing ***how well*** medical care works, not how to access it financially or where to get the cheapest. The well informed consumer, to the medical community, knows about the 'health' part of health insurance.

Note the discrepancy between the insurance and medical definitions. The insurance definition does nothing to improve outcomes or reduce waste and thus can't have much cost control impact.

But the medical definition directly attacks waste and improves outcomes so ***can*** significantly reduce costs. In fact scholars like Dr. Michael Barry of the Informed Medical Decisions Foundation and Dr. Albert Mulley of Dartmouth Medical School, suggest that well informed (medical definition) patients cost roughly 20% less than poorly informed patients. Much more on this coming up.

Unfortunately, our medical consumer engagement process falls trap to yet *another* definitional problem. Here's Dr. Suzanne Koven, summarizing it in the Boston Globe: [55]

- I appreciate patients informing and advocating for themselves
- I don't appreciate patients arguing with me about anatomy and physiology

In the 10 or so minutes patients typically spend with doctors, they can either question their doctor's competence ('arguing about anatomy and physiology') or discuss treatment options. They probably don't have time to do both.

And they'll probably lose the anatomy and physiology argument. Doctors know much more about medical care and technology than the typical patient ever will. Four years of medical school really do provide a solid technical foundation. Your doctor can out-fact you many times over. (Yes, your doctor may have misdiagnosed your problem. But that's best remedied by a second opinion, not an argument about physiology.)

You, however, know much more about your own treatment preferences than your doctor does. That's the real goal of consumer engagement: aligning treatment processes with patient preferences. That process – having doctors and patients explore treatment

[55] Suzanne Koven MD, Is physician burnout really a problem? Boston Globe, May 26, 2014

options to choose the best for each patient – can have a huge impact on utilization and costs. [56]

We have not, in this country, developed a standard definition of 'consumer engagement' or 'well informed patient' because, I suggest, of the 'mess' [57] that our system has become, largely due to the irrational employer based financing model upon which it rests. Compliance issues have become so overwhelming that brokers, and often their clients, simply don't have the time or energy to discuss more impactful issues.

As brokers struggle with compliance and plan designs, physicians with appropriate consumer information and advocacy, and the internet explodes with medical factoids and information, consumers get overwhelmed. Who gives them direction for their own research? What do they need to know? Which information is correct? Which is valid and appropriate?

Six faulty assumptions

Too often patients make assumptions and medical decisions that are, simply, wrong. I'll give some examples. How many of these resonate with you?

Faulty assumption #1: Good medical care leads to good health

Many people believe that good medical care leads to good health. As one thoughtful and articulate broker once said to me over an informal lunch, describing his young family, 'I have great healthcare for my kids. They're doing really well.'

Nonsense, I responded. 'Your kids are doing well because they're intellectually and emotionally within the normal range, have a mother and father who love them, live in a safe neighborhood, get plenty of good food and fresh air, have friends, and are warm in the winter and cool in the summer. The quality of their physicians and hospitals has virtually nothing to do with their health.'

Indeed, overwhelming evidence shows that good health comes from, in no particular order, good nutrition, exercise, emotional security, environment, public safety, socio-economic status *and* medical care, but that medical care is a relatively small component of good health.

How small a component? About 10%, according to the Massachusetts Health Policy Commission's 2013 cost trends report. Here are direct quotes from page 22:

[56] We'll discuss preference sensitive decision making in detail later in this book

[57] "Mess' comes from the title of Dr. Julius Richmond and Rashi Fein's 2005 book 'The Healthcare Mess'. Both authors were professors at Harvard Medical School.

- Massachusetts residents have better overall health than the United States average, with an additional 1.6 years of life expectancy and 0.9 fewer physically or mentally unhealthy days per month.

but

- Research shows that such outcomes are driven largely by social and behavioral factors, along with public health policies, while health care services delivered account for only 10 percent of general variation in health status.

Richmond and Fein, the two highly respected Harvard Medical School professors, echoed this in their 2005 book The Healthcare Mess: [58]

> Health gains since World War II were largely the consequence of progress in applying our knowledge of health promotion and disease prevention rather than improved clinical care.

Dr. William Frist, cardiologist and former US Senate Majority Leader, estimates medical care's impact slightly higher than the Massachusetts Health Policy folks, at 15 – 20%, saying

> Health is not health services. Health is behavior, it's genetics, it's socio-economic status, it's disparity, it's environment. Health services has about a 15 – 20% impact. [59]

We all know this but we forget it when we, ourselves, get sick or frightened. One reason, I submit, is that we have not been taught how best to use our medical care system. (Now *that's* an interesting value added role for brokers. Don't worry – I'll go into it in detail later.)

Here are some numbers to bolster my argument that 'more medical care isn't better for you'. Compare average medical spending per capita in various states with average longevity in those states. The assumption, of course: if more medical spending had a big impact, people who live in high spending states would live longer than people in low spending. That is not nearly the case.[60]

State	**$/capita 2009**	**Longevity at birth** 2013
Massachusetts	$9,278	80.5
Minnesota	$7,409	80.9

[58] Richmond and Fein, The Health Care Mess, pages 92 and 94

[59] CNBC Meeting of the Minds: The Future of Healthcare, broadcast in July 2009.

[60] Spending data from Kaiser Family Foundation. Longevity data from Measure of Americans. I used longevity data 4 years in the future to account for any potential health benefits of high 2009 spending.

Washington state	$6,782	79.9
Utah	$5,031	80.2
Mississippi	$6,571	75.0
Oklahoma	$6,532	75.9
West Virginia	$7,667	75.4

Good medical care doesn't necessarily lead to good health. Lots of other things are far more important.

By the way, based on the state data presented above, should a broker provide the same benefits advice in Minnesota and West Virginia? Or Massachusetts and Utah?

Faulty assumption #2: Lower deductibles and wider networks = better health insurance

Brokers and consumers too often equate better health insurance policies with lower deductibles and wider provider networks. Poorer policies have the opposite.

Unfortunately, there's no evidence - none that I've seen, at least, and I've looked - that lower deductibles or wider networks lead to better patient outcomes.

One reason for the faulty equation of wider networks with better policies: we have very poor outcome data by provider in this country. Lacking such data, consumers apparently prefer easier access to lots of (potentially mediocre) physicians and hospitals, figuring that one of them should be good in a crisis I guess.

Though we lack evidence that lower deductibles and wider networks lead to better patient outcomes, we have some evidence that lower deductibles and generous benefits can lead to patient harm. Here's Bernard Rosof, Chairman of Huntington Hospital in New York:

> Often people with generous insurance plans can run up large bills and face life threatening complications from unnecessary care. [61]

We also have extensive evidence that *better decision making* leads to better outcomes.

Faulty assumption #3: Newer technologies and medications are better

This is almost a mantra in this country: newer technologies / newer meds / robotic surgeons etc are better, so, when in doubt, get the newest.

This overlooks the fact that 'newer' is a very poor proxy for 'better'. Extensive evidence shows that *outcome based decision making*, not the newest shinny object, leads to better outcomes.

[61] More care is not necessarily better care, Connolly, Washington Post, 9/29/09

Consider Pradaxa, a newer blood thinner than warfarin, heavily advertised on TV and designed to overcome warfarin patient's need for excessive testing. Pradaxa's annual sales hover around $800 million. Its TV ads claim

> *In a clinical trial, Pradaxa was proven superior to warfarin at reducing the risk of stroke in patients with Afib not caused by a heart valve problem*

suggesting to the poorly informed, who don't know the right questions to ask or how to make outcome based decisions, that the newer drug was better. However…

In their legal settlement announced in May of 2014, Pradaxa paid **$650 million** to settle **4,000 claims** that company didn't adequately warn of risks including severe or fatal bleeding. (If death is a side effect, what's the main effect?) Unlike warfarin, there is no known reversal agent or antidote for Pradaxa.

Or consider robotic surgeries for hysterectomy patients. The da Vinci robot, approved by the FDA in 2005, is designed to generate better results and an easier recovery that traditional laparoscopic surgery, meaning less pain and fewer complications [62] all of which sounds great to the uninformed.

But a massive study of 264,000 women who had either laparoscopic or robotically assisted hysterectomies at 441 hospitals between 2007 and 2010 showed no benefits from robotic surgery when benefits are measured as complication rates or blood transfusion rates. The robotic procedures, however, cost about $2000 more. That's roughly 1/3 more.

Again an interest group, the robot manufacturers, benefited by making more money, while patients did not, at least in terms of enjoying better outcomes. Just higher costs.

The morale of these stories, and there are many more: *newer* isn't necessarily better in medicine. *More heavily advertised* isn't necessarily better. Instead *better* is better, based on outcomes from comparative studies. Well informed patients learn the right questions to ask and types of information to consider when evaluating their treatment options.

Faulty assumption #4: Publishing price lists will save money

Today, almost as an article of faith, brokers, carriers and healthcare consumers claim that knowing prices will save money. This is commonly called 'transparency' and the theory runs rampant among health insurance thinkers.

While I agree that a wise consumer should compare prices of similar quality products, then choose the least expensive to get the best value, I *don't agree* that simply publishing price lists will lead to any benefit, either systemic or individual. Remember:

[62] Rabin, Questions about Robotic Hysterectomy, New York Times, Feb 25, 2013

- You don't want the cheapest *unnecessary* care
- You also don't want the cheapest *poor quality* care
- You don't want cheap *inappropriate* care when slightly more expensive care might be preferable.

Let's consider tonsillectomies in northern New England. Here are tonsillectomy rates per 1000 children in various pediatric service areas during the period 2007 – 2010.[63]

Middlebury, Vt	5.6	Burlington, Vt	2.9
Berlin, NH	10.4	Lewiston, Maine	5.2
York, Maine	7.3	Portland, Maine	4.0
Presque Isle, Maine	5.8	Bangor, Maine	2.7
Dover, NH	8.1	Waterville, Maine	3.6
Manchester, NH	8.1	Ellsworth, Maine	3.8
Exeter, NH	8.4		

We know from these data that having about 3 tonsillectomies per 1000 children is appropriate, since there are no reports of kids in Burlington Vermont, Bangor Maine, Waterville Maine or Ellsworth Maine suffering poor health due to an insufficient number of tonsillectomies.

We also know that about 2/3 of tonsillectomies in Berlin New Hampshire, and half the tonsillectomies in York Maine are unnecessary since their tonsillectomy rates are so high.

Shopping for the least expensive tonsillectomy in Berlin or York leads to a bad medical care decision over half the time: people doing that get the cheapest unnecessary care. Imagine that your child has a bad reaction or needs a surgical re-do from an unnecessary tonsillectomy!

A far better approach is to learn the service quality and necessity first, and then, for two equally necessary services of similar quality, choose the least expensive. Don't put the cart before the proverbial horse.

Perhaps a better way to understand transparency is to consider the many types necessary to enhance good medical decisions. A wise patient would want access to transparency data addressing:

[63] These data come from the Dartmouth Atlas of Healthcare, Tonsillectomies per 1000 Children by Pediatric Surgery Area, 2007 – 2010. 'Pediatric service areas' are the geographical regions served by a specific pediatrician office. Kids in Burlington Vermont, for example, typically use Burlington pediatricians, not Berlin New Hampshire docs.

- Prices
- Treatment intensity as, for example, our tonsillectomy example above, or C-section rates by hospital, mastectomy rates by region or similar
- Clinical quality/ infection rates by provider and by treatment
- Treatment benefits
- Provider conflicts of interest

Providing only 1 may distort the message and lead patients away from making wise decisions rather than toward systemic efficiencies.

Another way to express this: homeowners who hire the cheapest plumber, framer, roofer, electrician and painter end up with the most expensive house that leaks. We tend to forget this when we consider healthcare prices.

Faulty assumption #5: Getting the least expensive care saves money

This variation on 'publishing price lists will save money' ignores a key factor in physician compensation: that doctors want to maintain their incomes and that time is their main inventory. When they receive less money per patient, they respond by seeing more patients.

This has negative, foreseeable but generally unforeseen consequences.

Dr. Sandeep Jauhar MD, PhD, and director of the heart failure program at Long Island Jewish Hospital, claims that 'there is no more wasteful entity in medicine than a rushed doctor'. [64] Because we're so rushed, he says, 'we order tests, prescribe drugs, hospitalize patients and — one of the costliest decisions a doctor can make today — call specialists for help' rather than explain to patients why some tests are unnecessary and specialist referrals inappropriate. 'Specialists in turn,' he says, 'order more tests, scans and the like.'

Cutting payments to physicians becomes a self defeating strategy.

Faulty assumption #6: Raising deductibles saves money

Deductibles, generally running about $1000 per year, are designed to act as a speed bump when patients consider medical care. Patients will spend their own money more wisely and frugally than they would spend the insurance carrier's money, according to the theory, thus avoiding unnecessary care and saving money.

Deductibles, unfortunately, act as a blunt instrument, perhaps doing more harm than good by failing to differentiate necessary from unnecessary medical care. Reducing

[64] Sandeep Jauhar, Busy Doctors, Wasteful Spending, New York Times, July 20, 2014

unnecessary care can, indeed, save money. But reducing *necessary* care can lead to poorer outcomes and higher costs.

Consider, by contrast, the French approach to deductibles. The French modify or exempt from cost sharing by **person** (disabled, elderly or sick), **treatment** (expensive, effective or necessary) and **medical condition**. The deductible is waived for people suffering from one of 30 'long and costly diseases' like cancer, severe chronic disease or long term psychiatric illness *for medical care is related to that condition*. But these people are still responsible for unrelated medical deductibles, say a broken leg or sprained ankle.

Our 'one size fits all' deductibles, by not differentiating among people, treatments or medical conditions sometimes actually add to costs rather than reducing them. One Medicare study showed that adding a modest copayment reduced the number of outpatient visits by about 20% per year.

But that came at the cost of 2 additional hospitalizations per 100 patients per year. The study conclusion, published in the New England Journal of Medicine:

> uniform increases in cost sharing for prescription drugs can have deleterious effects on health [65]

without reducing costs at all.

These faulty assumptions – and the system developed from them – lead to these types of conclusions by eminent scholars:

- American health outcomes among insured populations lag substantially behind those of other countries.[66]
- Americans at top income levels live longer than people at bottom income levels, *but less long than people at top income levels of other countries* [67] and
- Even the people most likely to be healthy, like college-educated Americans and those with high incomes, fare worse on many health indicators …[68]

Despite us paying more for medical care than any other country in the world!

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[65] Trivedi 'Increased Ambulatory Care Copayments and Hospitalizations Among the Elderly, NEJM Jan 28, 2010

[66] Bradley and Taylor, The American Healthcare Paradox, page 9

[67] Gudrais 'Unequal America' Harvard Magazine July 2008 referring to research by Harvard Prof Majid Ezzati

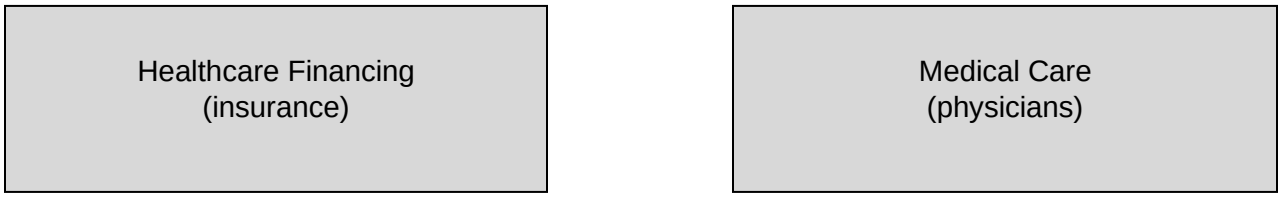
[68] For Americans Under 50, Stark Findings on Health, Tavernise, NY Times, Jan 9, 2013

The Fundamental Problem: Old School Thinking

Our systemic confusion and complexity has led to remarkable levels of specialization, not only in medical care but even in the brokerage community. Some brokers focus on Medicare, others on large group benefits, others on small group, some operate only in 1 state, others in many. Some agencies have wellness specialists, tax specialists and CDH specialists, others contract these functions out.

But few advise their clients about medical care issues, leaving that arena to physicians, often harried, often leading time compressed lives.

Our healthcare distribution system looks like is:



Two equally important but completely unrelated boxes. In the Old School, brokers provide financing programs while physicians provide medical care, but never the twain shall meet.

Brokers typically explain that they can't give medical advice because they're not trained or licensed to do this, which is, of course, true. **But I think they've conceptualized the problem incorrectly, relying more on superficial thinking than serious analysis.** Read on…

In the Old School 'nonintegrated' model, we expect physicians to address the following issues during an average 15 minute meeting with each patient:

- Patient's personal health status
- Disease diagnosis
- Treatment recommendations and alternatives
- Lifestyle issues and impacts on health
- Medication options, benefits and risks of each
- Individual risk factors and likelihood of future medical events
- Specific tests including benefits and risks of each
- Trends in medical care and new information since the patient's last visit
- Risks of having / not having specific tests or treatments
- Referral options *and more*

It's obviously very difficult to address all these issues satisfactorily in 2 hours, let along 15 minutes.

Five concerns about leaving all medical education to doctors

First, doctors respond to uninformed patient demand.

Studies show that about 1/3 of physicians would order a clinically unwarranted MRI if the patient demanded it, which raises patient risks without benefits since the MRIs in question are 'clinically unwarranted'. [69]

Many patients assume, as discussed above, that more medical care is better medical care, so a physician who doesn't prescribe a medication, test or treatment is a poorer physician.

Increasingly, physicians are compensated based on patient satisfaction survey results. Patients who believe 'more care is better care' penalize doctors who withhold painkillers, fail to prescribe a requested drug or test or skimp on referrals. This decreases the physicians' ability to counter the 'more is better' argument, even if they want to.

Studies show that, perhaps as a result of these factors, when faced with a potential screening test option, 95% of physicians recommended the screening test to their patients, and when faced with the option to prescribe medications, over 90% of physicians prescribed. [70]

Second, doctors respond to our legal / tort system, in which fear of malpractice lawsuits leads to excessive testing, Rx prescribing, excessive diagnoses and treatments. In one Gallup survey, physicians attributed 34 percent of overall healthcare costs to defensive medicine and 21 percent of their practice to be defensive in nature. Specifically, they estimated that 35 percent of diagnostic tests, 29 percent of lab tests, 19 percent of hospitalizations, 14 percent of prescriptions, and 8 percent of surgeries were performed to avoid lawsuits. [71]

Third, doctors get burned out so sometimes order tests, medications or treatments because it's easier than not ordering. One doctor described his interaction with a patient this way:

> *I could tell she wasn't happy. I decided that discussing the evidence would have been futile and I was too tired anyway*

Fourth, doctors pathologize or medicalize normal human behavior. Consider the patient who tells his doc 'I sometimes forget people's names in social settings.' Early stage dementia? (There's a drug for that). Social anxiety (There's a drug for that too.)

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[69] O'Reilly, Patient satisfaction: when a doctor's judgment risks a poor rating, AMED News, November 26, 2012

[70] Data from presentation by Benjamin Moulton at Dartmouth's 2014 Summer Institute for Informed Patient Choice

[71] Hettrich, The Costs of Defensive Medicine, AAOS Now, December, 2010. AAOS Now is the Journal of the American Association of Orthopedic Surgeons

Or a normal human reaction to noise and social stimulation? (There may even be a drug for that but it's probably not necessary.)

Or the patient who went to the beach last weekend and tells his doc 'I love watching the women parade around in their bikinis.' Diagnosis: hyper-sexual disorder.

But the next patient, who went to the same beach, reports that 'I completely ignored all the women parading around in their bikinis.' (Low-T and, of course, there's a pill for that)

Pathologizing, of course, ties closely to malpractice issues described above as well as the problem of uninformed demand.

Fifth, physicians favor interventions. This is sometimes called 'supply sensitive care' which simply means that if medical technologies or interventions are available, physicians will use them.

This is also sometimes called Roemer's Law after Professor Milton Roemer who first discovered the relationship between medical supply and utilization in the 1950s. Roemer found that as more hospital beds are built in a community, more hospital beds are used. His law: a hospital room built is a hospital room occupied because physicians, whether consciously or not, tend to use all the medical resources at hand.

Let's apply Roemer's Law to radiologic scanners. Consider the growth of scans since the mid 1990s as more and more machines became available.

Scans per 1000 people/year [72]

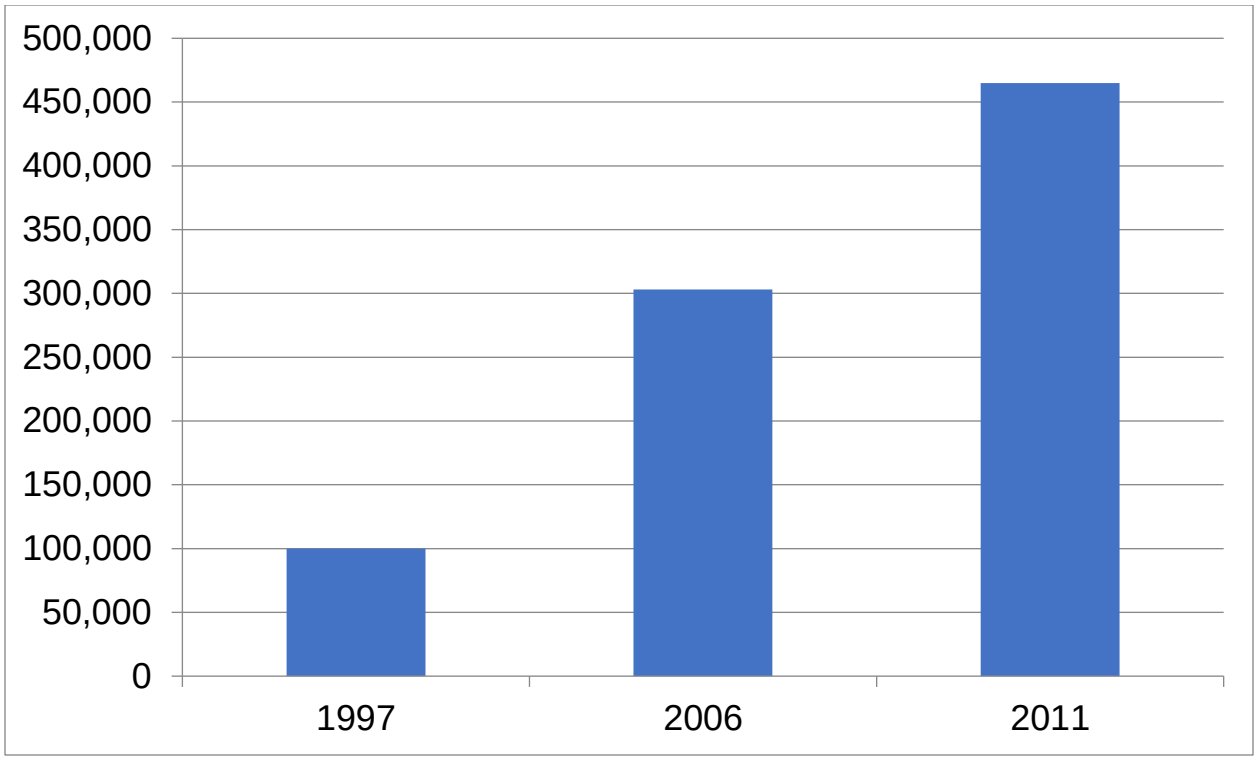
	MRI	CT
1996	52	17
2010	149	65

Note in passing the (non) impact of the internet on reducing medical care intensity. Google doesn't have much impact on reducing excessive or unnecessary care, despite most patients today claiming that they're 'well informed' since they do online research before engaging in medical care. Sorry, I don't buy it.

Now look at the impact of graduating more orthopedic specialists from medical schools:

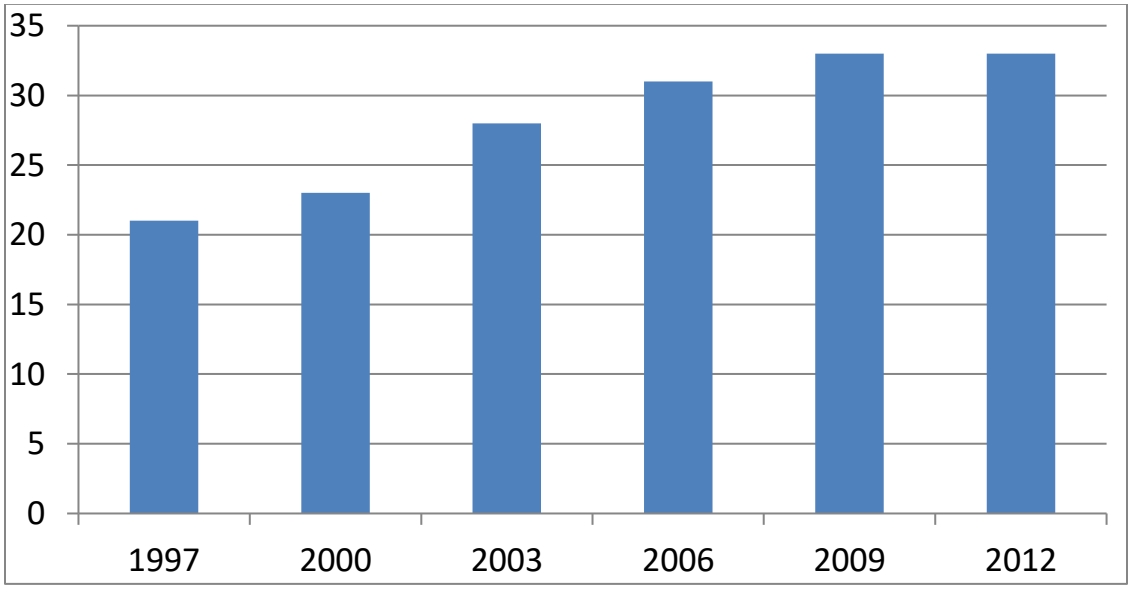
Number of Spinal Fusion Surgeries
performed annually in the US

[72] These data presented by Dr. Steven Woloshin at Dartmouth's Summer Institute for Informed Patient Choice, 2014



Since the mid-late 1990s, fetal oxygen sensors have become almost universally adopted in delivery rooms, despite the US Preventive Services Task Force not endorsing this technology in birthing. Fetal oxygen sensors identify stress on the fetus' heart and can lead to emergency C-sections. That's one of potentially many reasons for our increased rate of C-section deliveries since the mid-1990s.

Rate of C-sections
as percentage of all US births



Many more examples exist. But to summarize: Doctors face different financial, corporate and emotional pressures and incentives from the patients they advise. Here are some of those differences:

Physician Issues and Concerns	Patient Issues and Concerns
Success	Success
Fear of lawsuit	Pain
Fear of feeling guilty	Recovery process
Local / regional / hospital norms	Infection / readmission risk
Income and time constraints	Impact on family
Personal preferences (religion, experience, etc)	Personal preferences (religion, personal image, etc)

Asking ‘Doc, what would you do if you were me?’ tends to get answers from the Physician List, while patients worry about issues on the Patient List.

Doctors may also have different goals and risk tolerances from patients. Research suggests, for example, that 72% of oncologists advising early stage breast cancer patients rate ‘keeping your breast‘ a top goal while only 7% of patients do.

Meanwhile, 0% of oncologists rate ‘avoid using prostheses’ highly while 33% of patients do. [73]

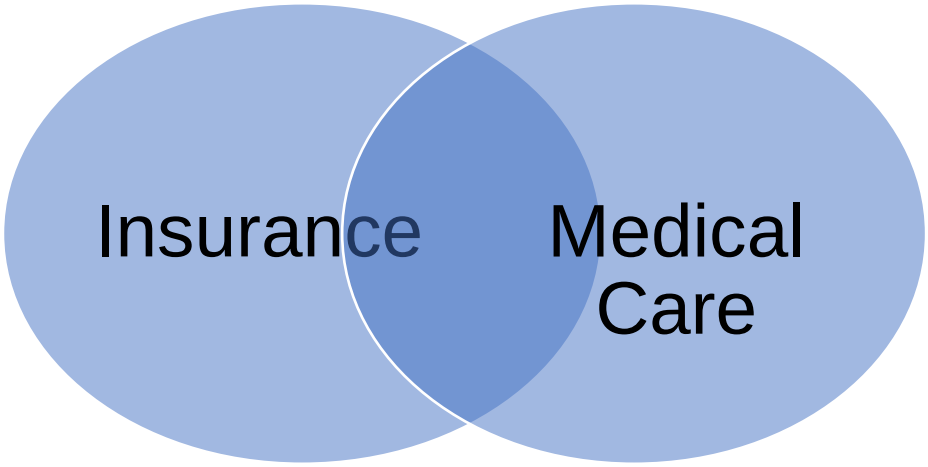
We have learned, over the past few decades, that leaving medical education entirely to physicians - even with a bit of online research - has led to healthcare inflation at approximately gdp + 3 to 5% with, unfortunately, poorer national statistics than other countries that spend less on medical care.

Splitting healthcare financing from healthcare delivery has been proven inefficient. It’s time to reconsider the Old School model.

New School: Integrating Finance and Care Delivery

Rather than continue with the ineffective Old School model, let’s introduce a New School approach.

[73] Data from presentation by Benjamin Moulton at Dartmouth’s 2014 Summer Institute for Informed Patient Choice



In the New School, financing and medical care overlap.

- Doctors understand networks, deductibles, plan designs and prices and *include them in treatment prescriptions.*
- Brokers understand medical terms, preference-sensitive decision making, outcome metrics, treatment intensity issues and *include them in plan designs*.

To do this, brokers need to understand and communicate 3 fundamental concepts to their subscribers:

- **Outcomes**, meaning how well does a medical intervention work. Brokers who help their clients focus on medical outcomes will help them avoid unnecessary medical care and choose higher quality care over lower.

  The best way to determine outcomes is from studies comparing patients who had a specific medical intervention with patients who did not. Other attempts to quantify outcomes are less robust, provide less good information and can lead to suboptimal medical decisions.

  We too often in this country, use proxies for outcomes. Proxies include ‘famous hospital’, ‘well known surgeon’, ‘well advertised medication’, or ‘game changing therapy’. Proxies may or may not correlate closely to actual patient outcomes.

  The important point for brokers to communicate to their clients: shop for medical care based on outcomes. They’ll enjoy better outcomes that way.

- **Process**, meaning *how* providers implement a particular treatment.

  Extensive evidence shows that some hospitals favor C-sections in situations that other hospitals do not, and that doctors in some regions routinely treat early stage breast cancer with mastectomies while doctors in others routinely prescribe other treatments. The Dartmouth Atlas of Healthcare has tracked these differences at hospital, regional and state levels for years.

One simple tool for brokers here: advise patients to ask their physician 'am I in a high or low intensity region / hospital for this procedure?' They can use that information when they obtain a second opinion.

- **Preference-sensitive**, meaning that two patients with similar diagnoses and prognoses may choose different treatments *and both be right*.

  This is, perhaps, the single most important issue in American medicine. Scholars ranging from Harvard Business School's Regina Herzlinger to Dartmouth's John Wennberg suggest that patients enjoy the best outcomes, often at the lowest costs, when they make well informed decisions. 'Well informed' means knowing the likely treatment outcomes (both benefits and risks), their process options (mastectomy or lumpectomy for example) and the prices.

  Laura Landro, writing in the Wall Street Journal, summarized the impact: [74]

  Studies show that when patients understand their choices and share in the decision making process with their doctors, they tend to choose less-invasive and less expensive treatments than they would otherwise have received.

The broker's educational role in this New School paradigm is to inform patients that they have choices and help them access key information to make wise choices; it is **not** to give specific medical advice.

My Proposed Decision Making Tree
that integrates clinical and insurance information

Brokers and benefits advisors can teach people to use this Decision Tree. It can organize your thinking and ensure that you address the key issues in making your medical decisions.

First identify the most likely benefits and risks of a particular medical intervention and the chance of each. Ask 'do the likely benefits of this medical intervention outweigh both the treatment risks and doing nothing?'

I you answer 'no, the likely benefits do not exceed the risks and are not better than doing nothing' then stop.

But if you decide that the likely benefits exceed the risks, continue.

Second identify your intervention options. You almost always have them. You can have surgery or physical therapy for example, take a brand name medication or generic, have an injection or take a medication, change your diet or take a pill.

[74] Laura Landro, Weighty Choices in Patient's Hands, Wall Street Journal, August 4, 2009

Decide which process you prefer. Research shows that different processes often generate similar outcomes. There's often no objectively right or wrong process decision. Rather these are personal choices or preference-sensitive decisions.

Third decide which provider generates the best outcomes using the treatment process you prefer. Some orthopedic surgeons may generate better spinal fusion surgical outcomes than others; some physical therapists better knee pain reductions.

Provider outcomes often – though not always – correlate with experience. The more shoulder surgeries a surgeon performs, the better his/her shoulder surgery patients tend to do.

If you can't determine actual outcomes by physician, use volume or experience with patients like you as a responsible proxy. Though not perfect, it can lead you in a positive direction.

Fourth, if two providers generate the same outcomes using the process you prefer, consider price.

Be sure to consider price 4th, only after you've determined that an intervention is likely beneficial, that you're getting the process you prefer and that you've chosen the best provider available.

Follow this 4-step process and you'll likely end up with better outcomes, be more satisfied with your care and perhaps even save some money along the way.

America's research community is developing tools to help patients with these tasks.

The Affordable Care Act on Decision Aids and Shared Decision Making

Section 3506 of the Affordable Care Act or Obamacare addresses Decision Aids and the Shared Decision Making process. The goal is to engage patients in *informed* decision making with healthcare providers.

Decision Aids are **tools** that present clinical evidence of risks and benefits of treatment options; they focus on likely outcomes. Decision Aids are not simply articles describing how a medical treatment works but without quantifying likely benefits and harms; that's an encyclopedia, not an Aid.

Shared Decision Making, on the other hand, is a **process** in which patients and their physicians decide together how to proceed. Unlike the old school paternalist model in which physicians *tell* patients which treatment to have, in the Shared Decision Making model physicians *help patients decide* which treatment option best suits their goals.

Shared Decision Making acknowledges that about 85% of medical decisions are 'preference sensitive', meaning the patient has more than 1 reasonable option and that two different patients suffering from the same medical condition can make different treatment decisions but both be right.

This may seem intuitively obvious to many. Unfortunately, research shows that physicians only discuss alternatives with patients about 14% of the time, and only about 9% of physicians inform patients that they have choices. [75] As a result, the impetus to inform patients that options exist most of the time may fall on the insurance community.

Decision Aids and Shared Decision Making also implicitly acknowledge a new vision of the physician's role. The ideal modern physician, suggests Dr. Atul Gawande of Harvard Medical School insightfully

> should be neither paternalistic nor informative but rather interpretive, helping patients determine their priorities and achieve them. [76]

This means patients need to learn basic outcome and intensity information outside the doctor-patient framework and opens a new, and potentially role redefining opportunity for brokers and carriers.

A Decision Aid Example

Decision Aids, currently under development at several medical schools and institutions, provide outcome data quantifying risks and benefits of medical interventions.

Consider the Number Needed to Treat. This tells how many people need to take a medication, have a test or have a treatment for 1 person to benefit from it.

The NNT acknowledges that medicine doesn't work perfectly, equally well on all people, all the time. But various interventions work - to paraphrase Abraham Lincoln - on some of the people, some of the time. The NNT tells how often, so how likely you are to benefit from a particular intervention.

The most comprehensive source of NNT information is a website entitled, not surprisingly, TheNNT.com.

Here's an example: 18 adults suffering from acute sinusitis need to take a course of antibiotics for 1 to benefit by having a faster resolution of symptoms. [77] The Number Needed to Treat for adults with sinusitis to benefit from antibiotics is 18.

Another example: 5 kids suffering from the croup need to take steroids for 1 to enjoy respiratory improvement. The NNT here is 5.

Some more NNT examples [78]

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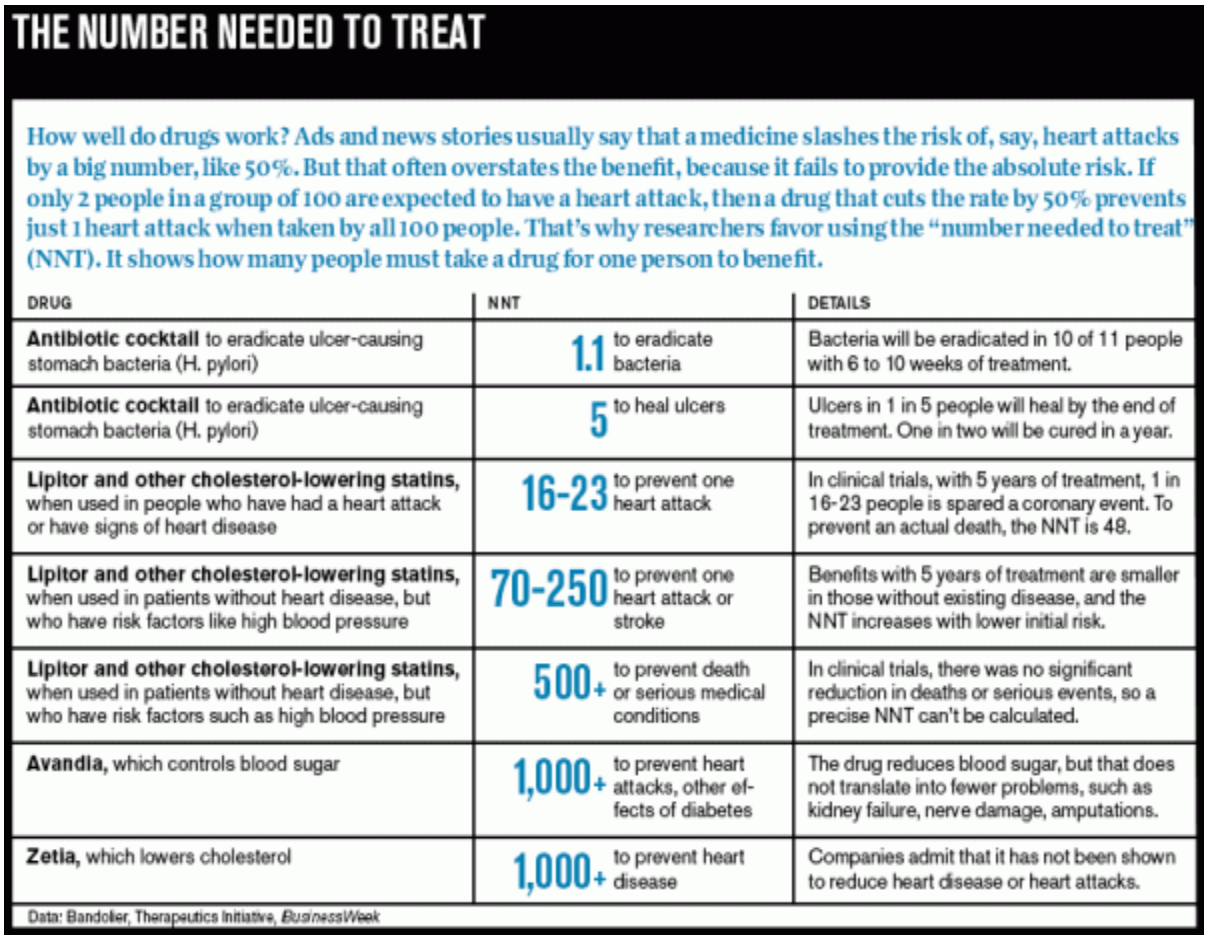
[75] Benjamin Moulton, op. cit.

[76] Sheri Fink's review of Atul Gawande's Being Mortal, New York Times Book Review, November 6, 2014

[77] http://www.thennt.com/nnt/antibiotics-for-clinically-diagnosed-acute-sinusitis/

[78] This chart appeared in BusinessWeek, January 2008.



THE NUMBER NEEDED TO TREAT

How well do drugs work? Ads and news stories usually say that a medicine slashes the risk of, say, heart attacks by a big number, like 50%. But that often overstates the benefit, because it fails to provide the absolute risk. If only 2 people in a group of 100 are expected to have a heart attack, then a drug that cuts the rate by 50% prevents just 1 heart attack when taken by all 100 people. That's why researchers favor using the "number needed to treat" (NNT). It shows how many people must take a drug for one person to benefit.

DRUG	NNT	DETAILS
Antibiotic cocktail to eradicate ulcer-causing stomach bacteria (H. pylori)	1.1 to eradicate bacteria	Bacteria will be eradicated in 10 of 11 people with 6 to 10 weeks of treatment.
Antibiotic cocktail to eradicate ulcer-causing stomach bacteria (H. pylori)	5 to heal ulcers	Ulcers in 1 in 5 people will heal by the end of treatment. One in two will be cured in a year.
Lipitor and other cholesterol-lowering statins, when used in people who have had a heart attack or have signs of heart disease	16-23 to prevent one heart attack	In clinical trials, with 5 years of treatment, 1 in 16-23 people is spared a coronary event. To prevent an actual death, the NNT is 48.
Lipitor and other cholesterol-lowering statins, when used in patients without heart disease, but who have risk factors like high blood pressure	70-250 to prevent one heart attack or stroke	Benefits with 5 years of treatment are smaller in those without existing disease, and the NNT increases with lower initial risk.
Lipitor and other cholesterol-lowering statins, when used in patients without heart disease, but who have risk factors such as high blood pressure	500+ to prevent death or serious medical conditions	In clinical trials, there was no significant reduction in deaths or serious events, so a precise NNT can't be calculated.
Avandia, which controls blood sugar	1,000+ to prevent heart attacks, other effects of diabetes	The drug reduces blood sugar, but that does not translate into fewer problems, such as kidney failure, nerve damage, amputations.
Zetia, which lowers cholesterol	1,000+ to prevent heart disease	Companies admit that it has not been shown to reduce heart disease or heart attacks.

Data: Bandolier, Therapeutics Initiative, *BusinessWeek*

Knowing the NNT can help patients in two different ways:

- First, patients can decide if a medical intervention works well enough to have. An NNT of 300, for example, make work so poorly – in your opinion – that it's not worth having.

  But an NNT of 2 works so well that you may decide to have this treatment.

- Second, the NNT helps patients decide which intervention works better. The lower the Number Needed to Treat, the better the medication intervention works.

How to determine the Number Needed to Treat

Researchers compare two similar groups of people, as alike as possible, except that one group gets the medication while the other does not. This comparison study identifies the medication as the independent variable. Researchers then note the outcomes from both groups and quantify the medication's impact.

That helps explain why the NNT numbers above seem so high: most adults recover from sinusitis and most kids recover from croup even without medication.

TheNNT.com lists dozens of medical interventions.

A second type of Decision Aid

ChoosingWisely, an initiative of the American Board of Internal Medicine Foundation, invited dozens of specialty medical associations to list *5 Things Patients and Doctors Should Question*. The ABIM Foundation then posted these lists on a website called ChoosingWisely.

Here are 3 examples from the hundreds listed:

- *Don't do imaging for low back pain within the first six weeks, unless red flags are present*, a recommendation of the American Academy of Family Physicians.

  The Family Physician Academy's justification: Imaging of the lower spine before six weeks does not improve outcomes

- *Don't indiscriminately prescribe antibiotics for uncomplicated rhinosinusitis*, a recommendation of the American Academy of Allergy, Asthma & Immunology.

  The Allergy, Asthma & Immunology Academy's justification: Viral infections cause the majority of acute rhinosinusitis and only 0.5 percent to 2 percent progress to bacterial infections.

  Most acute rhinosinusitis resolves without treatment in two weeks.

- *Don't perform annual stress cardiac imaging as part of routine follow-up in asymptomatic patients*, a recommendation of the American College of Cardiology.

  The College's justification: Performing stress cardiac imaging or advanced non-invasive imaging in patients without symptoms on a serial or scheduled pattern (e.g., every one to two years or at a heart procedure anniversary) rarely results in any meaningful change in patient management. This practice may, in fact, lead to unnecessary invasive procedures.

As of January, 2015, some 63 medical associations participated in the ChoosingWisely campaign, posting more than 300 treatment recommendations.

Other Decision Aids exist and are being developed all the time.

Decision Aids help focus doctor-patient discussions. No longer need patients argue about anatomy and physiology. Instead, doctors and patients can interpret Decision Aids together and discuss treatment outcomes and processes – far more fruitful discussions.

Decision Aids: necessary for Shared Decision Making

The Decision Aids listed above – and others - are a necessary step toward true patient involvement in medical decisions. 'Involvement' is sometimes called 'Shared Decision Making' in which patients and doctors together decide how to proceed.

Decision Aids are tools; Shared Decision Making is a process. Both work together.

How impactful are Decision Aids and Shared Decision Making?

Research presented at the Dartmouth Summer Institute for Informed Patient Choice, Hanover New Hampshire, June 2014 shows the following:

- Patients with stable coronary angina who used Decision Aids and engaged in Shared Decision Making with their physicians, were 20% less likely to choose stent insertion than patient who did not so engage
    - Absent Decision Aids, 88% of patients thought stents would help them
- Patients suffering from hip or knee arthritis were 25% less likely to choose hip or knee replacement after viewing Decision Aids
- Back pain patients with herniated disks opted for spinal fusion surgery30% less frequently
- Men diagnosed with early stage prostate cancer were 50% more likely to choose 'watchful waiting' than more invasive treatments.

Using Deductibles and HRAs with Decision Aids

The broker can now evolve from CHD version 1, deductibles with some tax benefits, to CDH version 2, deductibles that can incorporate consumer education into a true employee engagement / benefits program.

To move successfully from CDH 1 to CDH 2, brokers need to incorporate three components into their programs:

- Content
- An employee communication program, and
- Plan design incentives

Let's brainstorm, first with a radiology education program:

Consumer Engagement Example: Radiology

Incentive: $25 per employee to complete the following educational module. Then, $50 toward the out-of-pocket costs if an employee decides to have a back MRI.

Module content: Low back pain is the fifth most common reason for physician visits. This brief tutorial can help you *benefit* from your physician visit and *avoid unnecessary costs and medical harms.*

Medical research shows that getting an X-ray, CT scan or MRI shortly after the pain begins rarely helps since most people feel better in a month or so with or without the scans.

But imaging raises costs and risks of unnecessary care:

- Lower back MRIs cost about $1000
- CT scans about $1200
- X Rays about $250

One study found that back-pain sufferers who had an MRI in the first month were *eight times more likely* to have surgery, and had a *five-fold* increase in medical expenses—but didn't recover faster.

The excess imaging problem is that people both with and without back pain can show similar imaging results, meaning an identified abnormality in the test may not be the cause of your pain.

Once identified however, abnormalities need further evaluation. This can subject patients to costs and treatments which are often unnecessary since they don't speed recovery.

Review Questions:

1. How common are visits to the doctor due to back pain?
    - Uncommon
    - Very common. Back pain is the 5th most common reason for physician visits
2. If you have back pain, should you automatically, immediately get an imaging exam, like an MRI, CT scan or X-ray?
    - Yes, as soon as you feel any kind of back pain
    - Maybe not, since people who have imaging tests don't seem to get better medical results than people who wait before having the test
3. About how much does a lower back MRI cost?
    - About $20, my radiology co-payment,
    - About $1000 on average

Content continues: Some medical organizations recommend *against* imaging tests for back pain within the first month.

The American Academy of Family Physicians, representing 105,000 primary care physicians advises:

- Don't do imaging for low back pain within the first six weeks, unless red flags are present.

- Imaging of the lower spine before six weeks does not improve outcomes, but does increase costs.

The North American Spine Society, representing 7500 doctors, advises:

- Don't have advanced imaging (e.g., MRI) of the spine within the first six weeks for non-specific acute low back pain in the absence of red flags.
- In the absence of red flags, advanced imaging within the first six weeks has not been found to improve outcomes, but does increase costs.

The American College of Physicians, representing 126,000 physicians, advises:

- Don't obtain imaging studies in patients with non-specific low back pain.
- In patients with back pain that cannot be attributed to a specific disease or spinal abnormality, imaging with X-ray, CT scan or MRI does not improve patient outcomes.

The American Society of Anesthesiologists – Pain Medicine, representing 50,000 members who advocate for patients in pain, advises:

- Imaging for low back pain in the first six weeks after pain begins should be avoided in the absence of specific clinical indications
- Most low back pain does not need imaging and *doing so may reveal incidental findings that divert attention and increase the risk of having unhelpful surgery*.

Review Questions:

1. Do many medical professional organizations recommend that you wait 4 – 6 weeks before having a back imaging test, or have the test immediately upon feeling pain?
    - Wait 4 – 6 weeks unless specific red flags are present
    - Have the test immediately
2. Why do several medical professional organizations recommend waiting 4 – 6 weeks before having an imaging test?
    - To reduce patient costs and risks
    - To harm patients

Here are some Red Flags:

- a history of cancer or unexplained weight loss,
- fever or recent infection ,
- loss of bowel or bladder control,

- abnormal reflexes or loss of muscle power or feeling in the legs.

And here are some Key Questions to ask your doctor:

- Do you agree with the recommendations from the American Academy of Family Physicians and others that I wait 6 weeks before having a scan for my back pain?
  - If not, why not?
  - Do you think those recommendations apply to me?
- Do you worry that back imaging tests may incorrectly identify the cause of my back pain?
- Do I have the red flags listed above?
- And What other therapies do you recommend?

Many more Decision Aids and Educational Modules exist

Research organizations are continuously developing Decision Aids about the major healthcare cost drivers. A short research project will identify some of these for you. That's the easy part.

The hard part is integrating the clinical information with insurance plan designs. Though difficult, it's necessary if brokers want to change the Zywave reported client satisfaction numbers:

- Creates strategic plan that aligns with company goals: **43% unsatisfied**
- Offers employee benefits and consumerism communication / education: **41% unsatisfied**
- Assists with creating or maintaining a workplace wellness program: **66% unsatisfied**

Brokers face a dilemma: whether to remain in their comfort zone which we call CDH version 1, providing spreadsheets, products and compliance services or move to CDH version 2 that integrates financial and clinical considerations into plan designs.

I encourage anyone who has read this chapter to consider: If you were a client, would you prefer a broker who engaged in traditional insurance brokerage or who integrated clinical education into plan designs?

I'd also encourage people to consider their own history: Are you satisfied with health insurance trend and utilization rates?

I suggest that if you consider these two questions, your path forward becomes clear.

Robert Frost articulated the options poetically:

Two roads diverged in a wood and I –

I took the one less traveled by,

And that made all the difference

Review Questions

Answers on next page

1. One consequence of having employer based health insurance as the central mechanism of financing medical care in this country is the development of various 'fill in' programs for non-employed people. Examples include Medicare for elderly people and the Veteran's Healthcare Administration for military veterans, each with its own eligibility requirements, access criteria and payment programs. About how many such major programs exist in the US?

a. 1
b. About 6
c. About 295
d. About 13,500

2. We have two different definitions of 'well informed consumer'. The health insurance industry defines a well informed consumer as one understanding deductibles, network restrictions, referral requirements and similar. How does the medical industry define well informed consumer?

a. The same way, someone who understands deductibles, network restrictions and referral requirements
b. As someone who understands how well medical care works
c. As someone who has read lots of books about medical care
d. As someone who uses google to research their treatments

3. Can we usefully separate healthcare *financing* from healthcare *service* provision?

a. Yes. A professional broker, for example, only need describe the insurance policy to provide a complete service to his/her customers
b. No. We cannot usefully separate healthcare financing from service delivery. Every attempt to do that has resulted in higher costs and poorer outcomes
c. Sometimes. We can usefully separate financing from service deliveries for orthopedic conditions but not for cardiovascular
d. Sometimes. We can usefully separate financing from service deliveries for acute conditions but not for chronic

4. What is the best way to determine a medical care outcome?

a. From a comparative test, one that compares a group of people who had a specific medical intervention with a similar group that did not
b. By reviewing the relevant biological information
c. By reviewing the relevant anatomical information
d. By reviewing the relevant genetic information

5. What does 'preference sensitive' mean in medical care?

a. That one patient may prefer one treatment process while another, similar patient may prefer something different and that both patients can make the right decisions
b. That some people prefer one physician while others prefer someone else
c. That some physicians prefer one type of patient while other physicians prefer a different type
d. That some patients may prefer one hospital while others prefer a different hospital

6. What is the Number Needed to Treat?

a. The number of patients who need to have a treatment for one to benefit
b. The number of doctors who need to perform a surgery for 1 to get it right
c. The number of patients a doctor needs to treat in order to have one patient benefit from his/her care
d. The number of surgeries a hospital needs to host to get optimal outcomes

7. What are Decision Aids?

a. Decision Aids are tools that present clinical evidence of risks and benefits of treatment options; they focus on likely outcomes.
b. Techniques that can aid a physician who needs to make an important decision
c. Surgical tools to help hospital residents make better use of their time
d. Computer programs that determine the optimal treatment protocol for a specific patient

8. Which, below, is NOT a credible decision aid?

a. TheNNT
b. ChoosingWisely
c. The US Preventive Services Task Force
d. Brochures developed by Pfizer, the manufacturer of Lipitor, that explain the benefits of taking statins

Review Questions

Correct answers in bold

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Risk Management Overview

This chapter was originally written as the introduction to a book on the history of medical education by Andy Lazris, a primary care physician in Maryland. My thanks to Dr. Lazris for allowing me to include it here.

It was a chilly fall day in Baltimore, 1911, and Abraham Flexner was preparing for his meeting with William Welch. He meticulously parted his thinning, dark hair that sat on a long and stern face, barely cracking a smile. He slipped into his dark suit and wide tie, and then trod over to the kitchen for a cup of black coffee. He stood tall at just over six feet. He Semitic features were somewhat obscured by a bushy mustache that was curled at its edges. He wore small wire spectacles over his beady black eyes. He was neither engaging nor distant; he seemed to exist is a space all his own, and, as his friends and enemies often said, he lived within his own perception of reality. In a mere year, this former minor educator vaulted himself to fame and prominence, taking the entire medical world by storm. He understood the significance of his accomplishments and his new-found worth, and today he hoped to transform that into something that would forever alter American health care.

His hotel sat just outside the Johns Hopkins medical campus, in a well-manicured area of East Baltimore well beyond the stench of its more industrial harbor. Here there was a mix of poverty and wealth, and the Johns Hopkins Hospital, an innovative leader in medical education, had catered to both, transforming itself into the beacon of American medical excellence. Flexner himself had graduated from Hopkins many years ago with a degree in education. He obtained his diploma in just two years before moving to Indiana to establish a school. His brother, Simon, was a prominent doctor on staff, a man who had gained fame in discovering a bacterial infection that still bears his name. Now Abraham even eclipsed Simon in fame; William Welch, Johns Hopkins Hospital's president and a pathologist on staff, sought to meet with him to discuss perhaps the most significant change that the medical school, and all of American health care, would ever incur.

To Abraham Flexner, who believed in process and order, it was going to be just another day. One year earlier he had penned a comprehensive report sponsored by the Carnegie Foundation that scrutinized all of the nation's medical schools and picked winners and losers from among them. For Flexner and his allies, the report that would ultimately bear his name was the first requisite step in professionalizing and standardizing not only medical education, but the entire field of American health care. This was the culmination of work from the American Medical Association (AMA), an organization that had been fighting for half a century to gain control over the training and practice of doctors. Now with Flexner's report, the AMA, whose prior work had spurred Flexner's findings, put itself in a position to be the final arbiter regarding what a school must prove to be worthy of graduating "credentialed" physicians. Many schools did not make the cut and quickly died a natural death. Many doctors—women, blacks,

alternative practitioners, those without certified education—lost their ability to practice medicine. In an instant, because of Flexner, the entire medical landscape changed.

Flexner believed that it was about time that American health care followed the European example and adapted a rigorous scientific approach to education. And it was at Hopkins he hoped to drive in the first stake of a grand new program of reform. As he finished his single slice of toast and coffee, Abraham Flexner prepared to meet with Welch, an ally of his, and the most powerful man at Hopkins since Sir William Osler retired. Doctors Welch and Osler had personal enmity for each other and proclaimed very different visions about what health care, and specifically Johns Hopkins' mission, should encompass. One of American's premier medical institutions, Johns Hopkins stood at the forefront of the medical world, but both Welch and Flexner knew that it could be even better. With Osler gone, and with both Flexner's report and the promise of large amounts of corporate money in his back pocket, Dr. Welch now could do as he had always hoped. He would conspire today with Abraham Flexner to transform Johns Hopkins from a clinical institution that taught students how to care for patients to the nation's most prominent research facility, replacing clinical staff with full time scientists, and instituting a rigid curriculum for students that emphasized a pursuit of pure science, a curriculum (based on Flexner's recommendations) ultimately that every credentialed school would be compelled to follow, and one that largely has remained intact even today.

To exorcize the ghost of William Osler from Hopkins, Welch needed money and a template, and on this day in Baltimore, Abraham Flexner was prepared to offer him both. Now working for the Rockefeller Foundation, Flexner promised Welch with enough money to hire full-time research faculty, increase lab facilities, and institute a rigorous 4-year scientific curriculum. With Osler gone, William Welch could have his way.

Osler had established a program of clinical instruction, in which community physicians like him and his colleagues trained Hopkins students. As Osler said, "Medicine is learned by the bedside and not in the classroom. Let not your conceptions of disease come from words heard in the lecture room or read from the book. See, and then reason and compare and control. But see first." Osler not only reformed Hopkins and transformed it into a premier medical institution through his novel bedside patient-centric approach to teaching, but he did it with part-time instructors who were actual doctors and made their living by seeing patients. While he valued research and teaching, he believed that both were subservient to an education obtained in the real world by working with real patients. "He who studies medicine without books sails an uncharted sea," he said. "But he who studies medicine without patients does not go to sea at all." Osler never did any research on his own; he published books and gave lectures around the world about how to take care of patients, and how to raise a new class of physicians who would be expert in patient care. Hopkins was his grand laboratory for change.

William Welch despised Osler and sought to move Hopkins away from the community and into the lab. As a pathologist and a disciple of the scientifically-oriented German school of thought, he believed that clinical teachers were no more than greedy hacks who would sully students and prevent them from achieving medical greatness. Osler held sway at Hopkins, at least while he remained. But once he retired, his hand-picked clinical colleagues lacked the influence to maintain Osler's vision. Welch slowly drove them out, one by one, replacing them with scientists. When Flexner approached him with money and new method of education—one that Welch himself help to formulate through his position at the helm of the AMA—Welch now had the power and authority to entirely expunge Osler's stamp from Hopkins. He hired full-time faculty and fired all the clinical staff, including many of Osler's friends. Students now received their education in the class, in labs, and on the wards, not with patients in the community. They were taught by doctors who did not practice medicine but who merely read and researched it. All of this happened rapidly once Welch and Flexner shook their hands and made a deal on that chilly fall day in 1911. Hopkins was entirely transformed, and a new epoch of medical education began.

But 3500 miles west in London, Sir William Osler was fuming mad. A man known for his biting wit, his sardonic insults, and his medical genius, Osler had laid the path of modern medicine in America through his teaching and writings. Now, with Flexner's report taking root at Hopkins and elsewhere, all that he held dear was being threatened by the very man now glibly eating a piece of toast in Osler's city of Baltimore, a man who knew nothing about patients or medical care, a man prepared to exterminate all that Osler had accomplished for his profession by allying with no other than Osler's nemesis, William Welch. So, Osler wasted no time; he found his allies and used his influence to save the very field and institution to which he had devoted his life.

The struggle between Osler and Flexner set medical education and the entire health care industry on a trajectory that continues to this day. Not much has changed since the battle ended. One of the men continues to be quoted and well known, although his ideas have evaporated from our medical horizon. That is William Osler, whose books and innovations are thought to have initiated the birth of modern medicine, but whose soul was permanently shattered by the battle that commenced. The other was Abraham Flexner, a man known to very few, neither a physician nor a person with any knowledge about health care, but one whose report on medical education stamped a template upon medical care in America that we use even today. Its message is the very antithesis of what William Osler had so passionately advocated, and the changes it sparked transformed health care from a field devoted to the patient, as Osler so desperately endorsed, to one devoted to science alone and to the corporate foundations that funded scientific pursuits. And when we look at the proliferation of low value medical care today, at the trillion dollars of health care money that is squandered every year on medical interventions that help no one, at the generic medical school curriculum that emphasizes rote memorization and irrelevant sciences instead of critical thinking and patient-centered care, we owe all of that to Flexner. Osler's vision was just the

opposite of what we have today. And upon Osler's ashes, the medical system took a jagged turn and went far off course.

Medical care in America sat on a precarious spire through the latter part of the nineteenth century. Most medical schools were diploma mills with few standards, and those who could pay were able to obtain a degree. Hundreds of such schools were scattered across the country, producing far too many doctors as was necessary. (B12) Educated people typically eschewed the medical field; a survey in 1851 showed that from top colleges 26% of students became clergymen and lawyers, and only 8% became doctors. The salaries were low and the competition for patients fierce, a situation that remained in tact at least until 1900. (G82-4) The result were poorly trained doctors who held no mastery of their skills. A popular book in the 1880's, *The Physician Himself*, by DW Catheell, encouraged doctors to be more concerned with showing an image of competence rather than actually being competent. According to Paul Starr, "Cathell's guide reflects the exceptional insecurity of the 19th center doctors, their complete dependence on their clients, and their vulnerability to competition from laymen as well as colleagues." (g86-8)

In many ways to counter the beleaguered state of health care, a group of physicians in 1846 started a small organization called the American Medical Association (AMA). Meeting in New York, these doctors orchestrated a national organization whose goals were to raise and standardized medical degrees with the aim of improving the caliber of practice, decreasing the physician pool, and increasing doctor salaries. Throughout the century, the AMA met only once a year and remained small, exerting most of its influence on state medical societies. By accommodating with other forms of medical practitioners, especially homeopaths and eclectics, and by becoming a confederation of local medical societies instead of a top-down voice of change, the AMA gained members and influence. It also consolidated medical licensing state by state, (G90-112) setting standards by which physicians would be required to practice. This went a long way toward creating a set of licensed doctors would could now distinguish themselves from the mass of untrained practitioners dotting American's medical landscape.

The AMA's rise was not beneficial for all physicians, nor necessarily for patients. African-American doctors, unwelcome in many local medical societies, became marginalized, unable to obtain credentials. Similarly, women and doctors who practiced non-orthodox medical care, such as chiropractors, were excluded from those able to be credentialed. At this juncture, the AMA never elucidated a vision of health care that encompassed science and patient-centered care as the core of a viable medical system; its concrete objectives were much more nuanced and vague. It essentially was more a trade association that imposed laws and restrictions that were favorable to its members. Only in 1900 did it begin to see the advantage of "touting itself as a promotor of scientific education" to advance its agenda. (H2-3) In fact, even as late as 1906, the AMA promoted a pharmaceutical policy that on the surface sought to remove

sham drugs from the market, but in reality promoted a regulatory system to “withhold information from consumers and re-channel drug purchasing through physicians.” (G129-32) The ultimate intent of the AMA was not necessarily to improve the drug market, but to make sure that doctors have control over it, so as to increase the power of physicians in health care delivery.

But one ingredient was essential for the AMA and its licensed physician members to improve their status: better control of medical education. And that is the crux of the Flexner – Osler conflict. As long as medical schools remained unregulated, as long as they could proliferate without any rules or standardization, as long as diploma mills and substandard schools could produce large numbers of poor physicians, then American doctors could not achieve the status, money, and exclusiveness that the AMA sought. And as long as the AMA did not directly control the apparatus of medical education, then the less its influence would be over the health care delivery system. The AMA sought to cultivate a landscape with fewer schools training fewer doctors that were directly controlled by the AMA’s regulatory system. To that end, in 1904 the AMA established a council of medical education, formulating minimal standards that should be implemented in all medical schools. In 1906 it inspected all 160 medical schools and made judgments about which ones (82 in all) met minimal standards. But it kept its findings secret, fearful that any judgment it imposed on medical schools would be viewed as being self-serving, (G11-18) which of course it was.

To appear more objective, the AMA commissioned the Carnegie Foundation essentially to repeat its survey of medical schools and render an opinion about which schools met standards, so as to get “independent and presumably disinterested support for its efforts.” (B73) By 1908, when the AMA sanctioned this second survey, medical education had already been improving on its own, primarily due to state regulations and also the high cost of providing of running a school. The 450 schools training doctors in the late 1800’s had already been whittled down to 150. Many schools were already undergoing reforms to improve themselves. Many other schools remained marginal; they did not have any lab equipment or hospital affiliations, some even had sparse curricula and were situated in one room homes. 60% of schools did not have requirements for admission, only an eighth of the schools required two years of colleges, and many remained for-profit institutions. (B70-1) The Carnegie Foundation, led by Henry Pritchett, had similar concerns about medical education as the AMA, so their collaboration made sense. (B 73)

Many in the Carnegie Foundation touted the German model of medical education as a good template upon which any recommendations should be made. German schools utilized a hard science curriculum; students were well versed in chemistry, physics, biology, and math, and this provided the crux of their education. Labs and classroom work constituted requisite ingredients of education; clinical experience was far less important. The goal was to develop a very rigid science-based curriculum that would be the same in every American medical school without variation, emphasizing lab science,

qualifiable data, and a view of disease as a scientific entity that was not patient-specific. (I598) To orchestrate and implement the survey, Pritchett chose Abraham Flexner, an unknown former educator, a man with no medical training or background, but someone who adhered to the German model. Flexner also had a famous physician brother at Johns Hopkins, and the Carnegie Foundation had very close ties to that school and its president, William Welch. Welch, a pathologist, had transferred Hopkins into a living example of the model medical school that Carnegie and the AMA espoused.

But why Flexner? Why not a medical doctor or someone privier to the controversies in medical education? Or even someone who had set foot in a medical school? According to one source, Pritchett's hiring of Flexner was "one of the strangest appointments in education history." But Pritchett was counting on the AMA to lead the actual effort, with Flexner being more of a figurehead who followed the AMA roadmap. (B68) But Flexner was not a type of man who liked to be directed. As someone who had lived in Germany, who graduated from Hopkins, and who had experience in education, he had very established ideas about what he hoped to achieve with his survey. He made very profound decisions about many schools by only spending a few hours studying them. After consulting with doctors from Hopkins and others in the AMA, his report would do more than just set standards for medical schools; it would profoundly alter the very foundation of American medical education and practice, a legacy we will live with today, over 100 years later.

Who was Abraham Flexner? Born in Louisville, Kentucky in 1866 he was a son of Jewish German immigrants. He received a Bachelor of Arts at Johns Hopkins after only two years. He moved back to Kentucky where he founded an experimental school based on the German model, a school that ultimately failed. He met his wife, Annie Crawford, a former student in his school, and she ultimately became a successful Broadway playwright, bringing the couple to New York. Buoyed by her income, he then studied psychology both at Harvard and at the University of Berlin, never receiving a degree. While in Germany he was influenced by Fredrich Paulsen, a leader of the German school system, who believed that American education was not sufficiently serious and fact driven. Like German physician Fredrich von Mullen, from whom Flexner also learned, Paulsen advocated a stringent gymnasium system of learning whereby teachers taught students through a very formulaic and scientific fact-based curriculum. (B59, 91) After returning to New York, Flexner landed a job with the Carnegie Foundation through his brother Simon, a medical researcher at Hopkins and a good friend of Henry Pritchett's. (A63, B63)

The President of Johns Hopkins medical school, William Welch, a pathologist who also adhered to the German school of education, happened to be the president of the AMA at this time. Welch and Simon Flexner were good friends, and Welch was also connected to the Carnegie Foundation and supported its proposed survey of medical schools. Welch had co-authored the AMA's report on medical education in 1907 with Simon Flexner, a report many people think that Abraham Flexner's report is based.

Welch believed in a rationalistic and scientific view of medical education: if students can master science, they can figure out a patient's diagnosis and treatment without necessarily seeing or speaking with the patient. They just need data. Welch felt that medicine was a branch of pathophysiology, the science of studying the human body's operating system. He also insisted that all doctors, and all teachers, needed to be proficient in lab science rather than clinical skills; the vector of treatment for Welch ran from the lab to the bedside. In other words, doctors need only understand science and engage in research, and they will then be able to diagnose and treat diseases. (I599) As a corollary, Welch was adamant that all medical educators should be full time lab faculty; the clinical faculty (those who actually practiced medicine) were too busy and not sufficiently qualified to teach, he said. (K1860)

Abraham Flexner attacked tasks with purpose and an unbending agenda. Although often funny, and a person who enjoyed teasing colleagues, he also could be brutal and one-sided. He was known to be verbally abusive, scornful of compromise, self-centered, and only receptive to ideas and suggestions that mirrored his pre-conceived notions. (B2,3). Said one source, "Flexner did not tempter his language to please readers—a quality that was to become typical of Flexner's style. He was as tenacious as a bulldog in holding to his positions." (D64-5). And what were his positions regarding the report he was charged to write? Clearly, Flexner derived many of opinions from the people at Hopkins and the AMA with whom he conversed, people like Welch and his own brother, who believed that research and science must be the bedrocks of all medical schools, that faculty must be research based and full time, that schools needed to have a uniform science-based curricula, and that AMA would henceforth regulate medical schools and its graduates to ensure compliance with very strict, unwavering regulations. In other words, his report would match his own personality, and reflect the German-focused vision of William Welch and the program he had constructed at Johns Hopkins. In fact, Hopkins became Flexner's model school.

Flexner felt that two-thirds of the schools were hopeless and should not be allowed to survive, and that most of the others needed significant reform. All but two African-American schools were told to shut down, and the remaining two were expected to train black "practitioners" whose main job was to care for the black community and assure that they don't spread disease to whites. Said Flexner, "The practice of the Negro doctor will be limited to his own race, which in its turn will be cared for better by good Negro physicians than by poor white ones. But the physical well-being of the Negro is not only of moment to the Negro himself. Ten million of them live in close contact with sixty million whites. Not only does the Negro himself suffer from hookworm and tuberculosis; he communicates them to his white neighbors…. The Negro must be educated not only for his sake, but for ours. He is, as far as the human eye can see, a permanent factor in the nation" (Flexner report) Similarly, all schools that trained women, and all that trained alternative doctors, were eradicated by Flexner's report. Those schools deemed salvageable all were primarily white institutions with close ties to the AMA. If they complied with the report's recommendations regarding curricular,

structural, and faculty reform, then they would be accredited by the AMA's Association of American Medical Colleges, be eligible for philanthropic funding from groups like Carnegie and Rockefeller to help defray full-time faculty and structural cost, and look to Hopkins as a model of how to succeed. (H2)

The report was front page news across the country. The New York Times headline stated that most medical schools were "Factories for the making of Ignorant Doctors," lauding the Carnegie Foundation for uncovering the basest features of medical education and practice in the United States. (B69) No organization or newspaper said much about Flexner or his motivations, linked the report to Hopkins or the AMA, or questioned the report's conclusions. The report, it was believed, represented a milestone in American medical care, a turning point whereby the health care delivery system in this country would be purged of its most corrupt and loathsome elements. The response was fairly uniform adulation.

The focus of the report, and the model of what a reconstructed American health care system would look like, could be found at Johns Hopkins. Medical schools now looked to Baltimore for guidance, to William Welch, and to the German model. All doctors henceforth trained and credentialed in America would be scientifically oriented and experts in research. They would be taught by full time researchers, not clinicians who saw patients. And they would follow a science-based pre-medical and medical curriculum uniform in structure. But in reality, a purely scientific bent to medical education did not reflect the reality of Johns Hopkins. Hopkins was much bigger and broader than how Flexner portrayed it, mostly because of the tremendous presence of William Osler, the most respected and well-known doctor in America, who now was knighted and retired in England. His legacy was the blood and soul of Hopkins Medical School.

"It is much more important to know what sort of a patient has a disease than what sort of disease a patient has," said William Osler as he and his contingent of practicing physicians taught the medical students of Johns Hopkins through the late 1800's. "Listen to your patient, he is telling you the diagnosis." To Osler and the clinicians of Hopkins, the vector of education ran from the patient to the lab; students learned from seeing and working with patients, not from research or lectures, and then brought that information back to the scientific theater. Teachers needed to be practicing physicians, and students needed to learn at the bedside. Osler believed in the very opposite ideals of his nemesis William Welch and of the German school. And until his retirement, Osler's word was law at Hopkins.

William Osler was born in Ontario, Canada in 1849. After graduating from medical school in Canada, and working at McGill, he was recruited in 1889 the be the lead physician at the new Johns Hopkins Hospital in Baltimore, and in 1893 he helped create and lead the new Johns Hopkins Medical School. He essentially created the school from scratch, designing a curriculum based on his primary dictate: that students learn

only through immersion in direct patient care. To that end he eschewed a focus on science and the lab, and he hired as instructors practicing physicians in Baltimore. From the day they entered the school, students interacted with patients, an act that became their only forum of learning in the third and fourth year. To further their clinical proficiency, Osler invented the residence, whereby after graduating from medical school, new doctors would essentially take apprenticeships for several years before going off to practice on their own.

While men like William Welch did expose students to lectures and lab work, this was not the focus of Hopkins. Said Osler, "I cannot imagine anything more subversive to the highest ideal of clinical school than to hand over young men who are to be our best practitioners to a group of teachers who are ex officio out of touch with the conditions under which these young men will live…" To Osler, researchers and scientists should not teach medical students; this, after all, was the very lifeblood of Hopkins' Zeitgeist. (C387-9) The thrust of Osler's educational focus was to emphasize problem-solving and critical thinking skills, and the evaluation of medical information through directive observation of and interaction with real people, whose problems not only were medical but were socio-economic and cultural as well. He specifically rejected the "inculcation of facts through rote memorization" and the assumption that one could apply scientific dogma to patients without knowing the patient first. (F6-8)

When Osler left Hopkins in 1905 he was not only the primary driver of Hopkins' medical educational philosophy that vaulted the new school to the very pinnacle of American medical institutions, but he was also a national celebrity, having authored the widely read *The Principles and Practice of Medicine* and given lectures all over the country. He retired to England and left the cherished institution he created to his many clinical colleagues and friends.

But to William Welch and the scientists at Hopkins, a different type of school was needed to push Hopkins into the new age of medical education, one based on science, one in which full-time researchers and scientists taught students, and one in which practicing physicians (who men like Welch felt were greedy and contemptuous for earning money by seeing patients) were absent from the faculty. Welch was a powerful man, he was President of the AMA, he helped to write the first national review of medical schools, he had connections at the Carnegie Foundation. And he helped Flexner turn Hopkins away from a clinical institution to one that was inexorably married to hard science, research, and an inflexible curriculum based on the German school of thought.

By painting Hopkins as his model school, Flexner was in fact looking at a Hopkins that existed not in the realm of reality, not in the blueprint of its founder and primary architect, but rather through the stilted lens of non-clinical researchers like Welch, who sought to increase their power and influence now that Osler had slipped away. That Hopkins was the type of school that Flexner revered is a great absurdity; in many ways

it was the very anthesis of the rigid science-based bastion of learning that Flexner sought to promote in his report. But by painting the school using brushes and canvas supplied by Welch, Flexner in essence altered the very heart of Hopkins by making it comply with what he believed it already was.

From his perch in England, Osler did not stay subdued for long. Known for his fiery personality and pointed wit, he immediately conferred with his clinically-minded friends still at Hopkins, many of whom were being threatened by Welch with dismissal and demotion. Osler rejected Flexner's conclusions, believing that researchers should be in research institutions and not medical schools because they were poor teachers and they lacked the ability to enable students to learn how to practice medicine and interact with patients. (I600) He read the report "as a brutal and ignorant attack on his staff, his principles, and his sense of professionalism." Osler did not understand how faculty could be composed of anyone other than physicians actively practicing the art of medicine. "We chance the sacrifice of something that is really vital, the existence of a great clinical school organically united with the profession and the public," he said. He believed that the report will "likely spell ruin to the type of school I have always said should be and which we have tried to make it…," a place of refuge for the poor, a place where the best that is known is taught to the best students, where "men are encouraged to base their art upon the science of medicine…." Stating that Flexner had a "very feeble grasp of the clinical situation at Johns Hopkins Hospital" and that the institution was "more brilliant from the clinical side than the laboratory side," he felt that the report would diminish the educational experience of its students drastically. "The danger would be of the evolution throughout the country of a set of clinical prigs, the boundary of whose horizon would be the laboratory, and whose only human interest was research, forgetful of the wider claims of a clinical professor as a trainer of the young…." (C385-88)

Osler and others fought back as best they could. He wrote to Welch and to his clinical colleagues, asking them to repudiate the report, and not move Hopkins and the entire medical educational establishment in a direction he knew to be deleterious to the field. At Harvard, Francis Peabody, another clinician who was trying to inculcate medical education with real-life experiences, similarly assailed the Flexner report. Peabody who famously stated that "The secret of the care of the patient is in caring for the patient," (F20) felt that Flexner's approach "weakened the soul of the clinic." He, like Osler, sought a less rigid and lab-based means of teaching students how to practice medical science that focused on actual patient care rather than theoretical scientific theories that may not apply to the individual patient for whom they were caring. (B15) They both believed that Flexner's report "fossilized medical education into following a standardized format" that moved so far away from patients as to be useless in training competent physicians. (H3). Said one author: "Osler and Peabody recognized the danger of reducing the patient to simply a pathophysiology characterized by laboratory tests" while fearing that such a parochial focus blinds doctors from "the broader contextual issues that so often play a crucial function in disease." (I600-1)

But there were larger forces afloat than merely a few men who fought over medicine's direction. Despite the experience, status, and wisdom of men like Osler and Peabody, their words evaporated in the report's wave of acclamation. In fact, although Flexner's report did reflect what he and others believed to be the most logical path upon which the American medical system needed to tread, replacing corruption and incompetence with the scientific rigor of the German school of thought, the report was also a tool used by others to achieve a very specific agenda. Not only did the AMA gain power and notoriety by now grabbing the reigns of American medical education and licensing, but other corporate philanthropic groups like the Carnegie Foundation, who sponsored Flexner's study, and the Rockefeller Foundation, where Flexner worked for much of his subsequent life, had carefully crafted the report to create an American medial system that met their needs and expectations.

For the next 15years of his life, Flexner worked in the Rockefeller Foundation general education board, dictating which schools would receive foundation money and which would not. During that time, he approved the donation of half a billion dollars to schools that met all the rigid criteria of his report and in the process "profoundly altered the medical education landscape;" the schools that did not follow Flexner's script received no money and could not afford to stay afloat, (B1) failing too to be granted requisite accreditation by the AMA. As one author states, "Money was power, and contributors to medical education knew that." (F12)

What was the agenda of groups like the Rockefeller foundation, and why did they buy into Flexner's model? Essentially, their hope was to create great bastions of medical research, whereby American medical institutions could engage in scientific study that matched that of Europe and created breakthroughs that would advance the medical industry and, undoubtedly, generate financial gain for the foundations and their parent corporations. These foundations had very specific agendas for the many schools they sponsored, and their donations were tied to the realization of those agendas, which typically required moving the schools from a clinical direction to one that was purely scientific and lab-based. (F12) Schools had to eliminate clinical faculty, hire full-time science based faculty, emphasize basic science research in their teaching, and adhere to the very rigid science-based curriculum that Flexner laid out in his report. This instigated bitter struggles between old line clinical teachers like Osler who used to have clout, and the newer research scientists who were now taking over. Full time faculty could only exist if the schools were subsidized, and these large foundations were happy to pay the schools so long as the schools adhered to their rules. (B21-3)

As the tide of funding and accreditation became clear in the years after Flexner, most schools accommodated to the new reality. As clinical professors disappeared from these schools, full-time researchers took their place. The foundation leaders—who were in fact agents of the large corporations who funneled money to them—then dictated to these schools the forms of research they desired. Hence began a cycle in American medicine in which clinical skills fell prey to basic science, and in which

corporate entities dictated the direction of medical education and medical practice. "Whether their motives were shrewd business instincts or noblesse oblique, the influence of these industrialists and financers was profound, some would say pernicious." (B19) Within years, the clinical institution that Osler always envisioned, ones in which patients and clinicians taught students, and in which students would leave the school with both a scientific and humanistic knowledge of disease and treatment, completely vanished from the medical landscape. Osler's name remained well-known and respected, but Flexner's ideas won the day. All this occurred because the corporate boards gained enough power to impact the direction American medicine would flow. "Though the board represented itself as a purely neutral force responding to the dictates of science and the wishes of the medical schools, its staff actively sought to impose a model of medical education more closely wedded to research than to medical practice. These policies determined not so much which institutions would survive as which would dominate, how they would be run, and what ideals would prevail." (B121)

On that chilly day in 1911, when a well groomed and stern-faced Abraham Flexner walked through Baltimore to meet with William Welch, he planned to describe to Welch a plan that both men had already conspired to create. Flexner had been working with Frederick Gates of the Rockefeller Trust, who wanted to provide Hopkins with a $1 million grant if the school transformed to the model school described by Flexner's findings. Essentially, Hopkins would be the nation's premier research institute, with salaried researchers paid in part by the grant spearheading all teaching responsibilities, with all students following a rigid curriculum focused on science (A74), and with strict guidelines for admission and graduation. The clinical realm championed by Osler and his colleagues would be relegated to a footnote. Clinicians "have long ceased to be scientifically significant…. Whether the extremely prosperous physician or surgeon should have a place in such an institute as the Johns Hopkins Hospital seems to me most doubtful," said Flexner to Gates. (C-381)

In the realm of large foundations like Rockefeller and Carnegie, medical schools served as the best repositories of research and the production of scientists, upon which these companies were focused. Often, they sought to promote research pertinent to their own corporate interests. In fact, under Flexner's new guidelines requiring full-time faculty and ample research facilities, schools needed foundation money if they were to survive. As a result, within a decade all medical schools became dominated by researchers and not clinical physicians and teachers. "Many have argued that this was a mistake. They would have preferred to see only a few schools like Johns Hopkins training scientists and specialists, while the rest, with more modest programs, turned out general practitioners to take care of the everyday ills that make up the greater part of medical work. But this was not the course that American medical education followed…." (G123)

Despite emphatic and frequent protests from Osler in England, the world that he created at Hopkins and beyond quickly dissolved. His colleagues were fired and replaced by a

purely research-based staff. No longer did clinicians teach students, and no longer did students learn from their patients, as Osler so vehemently insisted. Welch readily accepted the million dollar grant from Rockefeller, and spearheaded a dramatic transformation in medical education and practice that relied on Flexner's template, the AMA's leadership, and Corporate dollars. Flexner went on to spend most of his career working for the Rockefeller Foundation.

The other winner in the battle for medicine's soul was the AMA, which stood as the only organization capable of assuring that Flexner's vision was properly implemented and executed. After Flexner, "the AMA would largely control medical school accreditation which would become bureaucratized and sclerotic. It also became the officially recognized entity authorized to speak on behalf of all physicians." (H3) Because doctors had to be licensed, and because licensing was controlled by the AMA, and because only AMA sponsored medical schools could graduate certified physicians, the AMA in fact controlled the global American medical system, and in many ways it was beholden to corporate foundations that help fund them and the schools. Flexner himself believed that medical education and practice would change and grow as times changed. "The flexibility and freedom to change—indeed the mandate to do so—was part of the system's mission from the very beginning. Contrary to popular myth, the system was always intended to evolve." (F25). Unfortunately, groups like Rockefeller and the AMA were not interested these changes.

Today, medical schools, and the entire health care network in this country, reflect the legacy of Flexner. As one author stated, "The practice of medicine was seen as a rigorist science with clear answers to defined questions, the foibles of patients being the province not of the laboratory-trained physicians but of clergymen and social workers." (K1860-1) The medical system would now focus on "disease organically defined, not on the system of health care or on society's health more generally." Patient-centered care, prevention, and the nuances of disease all were extirpated from training as a very parochial view of science as fact reduced medical education to a technical pursuit. (F25). Using a narrow set of courses in chemistry, physics, and biology to determine which students best qualified to be physicians, and then teaching students the science of the human health through a set curriculum that today is nearly identical to the one recommended by Flexner, medical schools have moved far away from the vision of Osler. Humanistic qualities, critical thinking, and a patient-focused approach to care have lost all significance both in the selection of students and in their training. "Isn't it astonishing that the medical school curriculum structure has remained unchanged for more than 100 years? And if we omit the 'dynamic sociological encounter between patient and physician' [as Osler advocated], is it any wonder a health care crisis would emerge?" (H3)

The legacy of Flexner's report and the rise of the AMA has left many scars with which we are living today. On the positive side for physicians, many charlatan practices have disappeared, and physician competency and income increased considerably. In 1900

the average doctor earned $750-$1500. By 1928 they were already earning on average $6354, with salary escalating continually due to a deliberately low physician supply and strong advocacy by the AMA. (G142)

But the physician class changed dramatically. Now only one, scientifically-based model of medical care predominated; the field became quite homogeneous and dependent on a scripted formula of practice to achieve success. The increased cost of medical education, required to help defray costs for full-time faculty and research facilities, eliminated all but the wealthy from the ranks of medical students. And Flexner's report and its ramifications triggered deliberate policies of discrimination against women, African-Americans, and Jews. (G124) Only two African-American medical schools remained, and the black doctor only survived through the efforts of the newly created National Medical Association (NMA) which sponsored a parallel black medical system given the pervasive bigotry sewed into the AMA and the American medical system it helped to create.

The other casualty of Flexner was the slaying of Osler. Today many people know Osler, or at least have heard the name. Virtually no one has heard of Flexner, the Rockefeller and Carnegie Foundation, or men like William Welch. Yet Flexner's report and its subsequent embrace by the AMA, charitable foundations, and established medical schools like Hopkins have secured Osler's irrelevance to the practice of medicine and the training of physicians. Researchers and specialists have trumped clinical generalists, the very physicians Osler's bold reforms were promoting as the cure to health care's ills at the turn of the century. After Flexner, researchers were "regarded as of greater intellectual worth than clinical practitioners which, not lending itself to grants, publications, or academic glory, was deemed a lesser calling." Even when schools trained non-research physicians, the emphasis on clinical education revolved around specialization and a scientific view of disease. (K1861) According to historian Howard Berliner, Flexner's "language leaves little doubt that he held the mass produced 'family doctor' in low esteem and he considered the new standard among physicians to be the highly scientific and sophisticated clinicians molded in the Hopkins environment of its equivalent." (B15)

In 1984 an AAMC report recommended changes in medical education that would move clinical medicine beyond the narrow confines of Flexner's report, changes they predicted would take root within just a few years. These were to:

- Develop analytic skills and instill patient-centric values into the curriculum.
- Encourage a broad liberal arts pre-med education
- Emphasize critical thinking over memorization
- Ensure that clinical clerkships encourage respect and concern for patient values
- Reward doctors who are educators. (I598)

Needless to say, none of those reforms transpired. Pre-meds are required to focus on science, and the Medical College Admission Test (MCAT) requires memorization and regurgitation of a large quantity of purely scientific data. Even through medical school, memorization, not critical thinking, is the skill that is necessary for testing success. Virtually no generalists teach students, and students are exposed almost entirely to specialized highly-scientific medical practices and ideas. Most significantly, patient-centered care as advocated by Osler has become a token gesture rather than the crux of all medical education.

We are indeed in a health care crisis. In our country we spend a trillion dollars of health care dollars for interventions that have been shown to be ineffective or even dangerous. Almost 50% of all we do as doctors is considered low value. Despite all we spend on health care, we rank among the worst in outcomes among all industrial countries. We are a nation of specialists, of high-tech medical practice, and of excessive drug use. Virtually all research is financed and controlled by industry and is conducted within medical schools whose research faculty are dependent on industry to survive and thrive, thus leading to conclusions that are sullied by self-interest. Patients feel frustrated, and their needs often fall prey to generic protocols and an emphasis on rigid scientific dogma. Students continue to be trained as scientists and not as physicians. Said one historian, “The Flexner Report… has taught us the danger of establishing a confining (and ultimately damaging) standard” in medical education and practice. (I601)

Can our health care delivery system ever change? To do so, we first must understand why it has moved so far off the rails of common sense and medical sanity. Today, over 100 years after Flexner, we should ask why we have not changed yet. Are there too many people and organizations benefitting from the current system? Do medical thought leaders believe that Flexner’s formula is still the best one for our health care delivery system? Or is it perhaps inertia and a lack of understanding of what needs to be fixed? In the end, we should peak back to a time before Flexner and grasp what William Osler had already gifted to the medical world. When read today, Osler’s words and ideas make sense. Certainly, if we are ever to transcend the health care mess in which we are embroiled, me must understand and embrace Osler and finally acknowledge the flaw of Flexner’s errant course.

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Review Questions

Answers on next page

1. Which statement below best summarizes the European or Flexner approach to medicine?

a. Medicine is entirely scientific. As long as doctors gather enough data on the patient and are well enough trained, they will make the correct diagnosis and prescribe the correct treatment
b. Medicine is entirely an art. Tests and data are irrelevant since each patient is unique
c. Medicine is a combination of science and art. Doctors need to combine patient hard data from tests with wisdom and experience
d. Medicine is a religion. As long as patients believe strongly enough, they will recover from their medical ailments

2. Who said “It is much more important to know what sort of a patient has a disease than what sort of disease a patient has…Listen to your patient, he is telling you the diagnosis.”?

a. William Osler
b. Abraham Flexner
c. Alfred E. Neuman
d. Albert Einstein

3. Which type of physician would you prefer to diagnose and treat you: one trained in the Flexner style or one trained in the Osler style?

a. Flexner
b. Osler

4. How can a patient determine which type of physician – a Flexner or an Osler follower – treats them?

a. By interviewing the physician before receiving care. Note that this requires that the patient be well informed (medical definition) about care and treatments
b. There is no good mechanism available today to help patients make that choice
c. By staying ‘in-network’ based on your health insurance plan
d. By getting all your medical care overseas

Review Questions

Correct answers in bold

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c. **The correct answer is up to each individual patient**

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a**. By interviewing the physician before receiving care. Note that this requires that the patient be well informed (medical definition) about care and treatments**
b. There is no good mechanism available (either a or b can be correct)
c. By staying ‘in-network’ based on your health insurance plan
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Some Risk Management Problems in today's health insurance environment

As Andy Lazris so eloquently discussed in the previous chapter, Abraham Flexner believed in science and facts. He idealized the then-cutting-edge German approach to medical education that focused on 3 laboratory based disciplines - physiology, pathology and bacteriology – at the expense of the humanities and experience. Science gives answers, 'facts', and the medical student's role to Flexnerians, is to collect them.[79]

The more facts the student accumulates, the better the student.

The better the student, the better the doctor.

The ideal physician accumulates as many scientific facts about medicine in general, and then the patient in particular, as possible in order to make the best diagnosis and treatment recommendation. Facts drive the process.

It's not even necessary to see the actual patient in Flexner's world. To quote Andy's comments on the German approach:

> if students can master science, they can figure out a patient's diagnosis and treatment without necessarily seeing or speaking with the patient. They just need data.

Or, stated differently, Flexnerians believe that the human body is a mechanical object to be understood and fixed when it malfunctions, a huge wall of knobs and dials that doctors optimize with medications, therapies and surgeries. Treating a patient essentially becomes the same as baking a cake or building a car. Cake too sweet? Dial down on the sugar. Cholesterol too high? Dial up on the statins. Knee pain? Arthroscopic debridement.

An extension of the Flexnerian mechanical world view is that there's always some way that medicine can improve the patient's condition, leading to the proposition that more medical care is better than less. Why settle for a *pretty* healthy patient when we can create, through science, a *very* healthy one?

This scientific-mechanical approach to medicine minimizes the problem of complexity, sidesteps the problem of overreach and ignores the issue of patient preference. Each independently poses a significant objection to this mechanical view of medicine. Altogether, they pose a mortal one. We'll explore below.

The Problem of Complexity

[79] *Flexner's exact quote was 'The student is to collect and evaluate facts.' Abraham Flexner (1910). "Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching"*

The human body, as any practitioner or recipient of medical care knows, is north of unbelievably complex. Each medical intervention creates primary effects, side effects and rebound effects which may serve to mitigate the intended impacts. Statins, for example, have a primary effect of preventing heart attacks, which they do, on average according to Pfizer's estimates of patients without known heart disease but with risk factors, about 1% of the time. [80]

But statins cause diabetes about half as often. [81] Diabetes, in turn, can cause heart attacks. So the statin rebound effect ultimately negates some of the primary impact.

Michael Porter and Elizabeth Teisberg, in their massive Redefining Health Care treatise, summarized the medicine complexity problem. 'There are too simply too many dimensions of process to track and too much heterogeneity among patients,' they write.[82] Clinicians may tend to focus not on the most important medical variables but on those most easy to identify, quantify and affect.

Often these become 'guidelines', 'checklists' or 'established protocols.'

We humans, it appears, like guidelines and protocols. It's one of our foibles. Checklists help us reduce the number of potentially important variables to a manageable handful, help us target our investigations and streamline the medical diagnostic and treatment process. Guidelines help us avoid starting every patient analysis from the underlying biological and physiological principles, then reasoning toward a specific diagnosis and treatment. Protocols tell us which interventions commonly succeed with a particular type of patient.

Those efficiency gains are the good bits.

The bad bit comes from a second human foible: intellectual and bureaucratic inertia. Once we accept a standard approach, we tend to ignore contrary evidence, put blinders on in other words. Some research suggests that this is the reason it takes up to 10 years for a new medical process to become widely accepted even if it's clearly scientifically based and clearly better than the old process, or even longer for an outdated one to disappear. [83]

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[80] See the Lipitor ad, Dec 4, 2007 Wall Street Journal. The small print, bottom left of that ad states 'in a large clinical study, 3% of patients taking a sugar pill or placebo had a heart attack compared to 2% of patients taking Lipitor.' This study was of patients without known heart disease. The number differ for patients with heart disease.

[81] See Statin Drugs Given for 5 Years for Heart Disease Prevention (Without Known Heart Disease), 2017 version by John Abramson on TheNNT.com.

[82] Porter and Teisberg, Redefining Health Care, page 87

[83] See Vinary Prasad, Ending Medical Reversal and Richard Pearl, Mistreated for more on these estimates.

In Flexner's model, physicians would, theoretically, constantly review and revisit guidelines and protocols to ensure their accuracy in the face of new research and information. But that's simply not what happens in real life. Our foibles – fatigue, complacency, greed, intellectual laziness perhaps - don't permit it.

As Atul Gawande summarized in his 2015 Overkill New Yorker article:

> We can recommend care of little or no value because it enhances our incomes, because it's our habit, or because we genuinely but incorrectly believe in it.

Flexner apparently thought well trained physicians wouldn't take this approach; Gawande, the product of our Flexner based medical education system, admitted to it.

How often does this actually happen? Vinay Prasad answered that in a brilliant analysis of medical reversal. [84]

Prasad and his team reviewed every article in the New England Journal of Medicine between 2001 and 2010 and pulled out those that tested an established medical practice, one commonly used on patients like intensively lowering blood sugar in Type 2 diabetics to reduce cardiovascular events … interventions, in other words, that were scientifically fact based and that the medical community embraced.

363 studies qualified.

Prasad then asked 'Of those 363 studies, how many *affirmed* the practice?' i.e. found that it benefited patients.

38% affirmed the practice, 40% negated the practice, (found it ineffective or harmful) and 22% were ambiguous.

The Prasad team's research shows that if you base your medical decisions on biology, physiology, anatomy and logic – *exactly as Flexner prescribed* – you are wrong about as often as you are right.

That strikes me as a pretty dismal report card on the Flexner / Germanic approach to medical education.

Porter and Teisberg attack Flexner's medicine-as-mechanics approach from a second point of view also. Mediocrity, errors and the important human / personal interaction factor in doctor-patient relationships go unaddressed. Even if two physicians have managed to master Flexner's scientific facts equally well, one may be a better medical practitioner. Fact based knowledge and process compliance don't always lead to similar outcomes.

Consider cystic fibrosis treatment and outcomes. [85]

All CF patients receive care from one of 117 ultraspecialized centers that follow the same extremely detailed treatment guidelines. CF specialists attend the same

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[84] Prasad, A Decade of Reversal, Mayo Clinic Proceedings, August 2013

[85] This discussion comes from Atul Gawande's article The Bell Curve in his book Better, 2007.

conferences, shared the same knowledge base, focus on the same variables and facts, and treat patients the same way. But they generate different patient outcomes.

The two primary CF outcome metrics are lung function and longevity. The Flexner / German expectation would be that all centers would generate approximately similar outcomes on these two measures, within a fairly narrow margin. After all, they all use the same science and facts in their diagnostic and treatment protocols and treat similar patients.

But research shows that the 117 cystic fibrosis facilities generate quite discrepant outcomes. The average clinic, according to a 1997 study, generated patient life expectancies of just over 30 years. But the best managed 46.

Ditto for lung capacity.

That's only part of the issue. Perhaps the more astonishing thing is that one CF center routinely outperformed the others. It was at Fairview-University Children's Hospital in Minneapolis. (This is based on an early 2000's study, is likely out of date and I don't give cystic fibrosis treatment advice.) Patients at Fairview apparently routinely had lung capacities equal to the average non-CF population, higher than at most CF clinics.

How could a facility far outperform the average, and how could the same one outperform the average year after year? The answer appears to be some amorphous combination of physician-patient connections, a corporate culture that wouldn't accept sub-par outcomes and the personality of the director.

Flexner's mechanical model doesn't describe or account for these results.

But William Osler's does. 'The good physician', he claims, 'treats the disease. The great physician treats the patient who has the disease.' Medical excellence is only partially grounded in science and facts – those are necessary but not sufficient conditions. Excellence also requires empathy, interpersonal connections, clinician perceptiveness and a human connection that somehow, almost indescribably, adds therapeutic value. That's the art of medical care, present to Osler but missing from Flexner.

The difference between good and great to Flexner is some measure of scientific understanding and fact accumulation. The difference between good and great to Osler appears in other arenas like human connections, the non-scientific ones that medical education too often leaves out.

But we've so far only discussed the 'complication' critique of Flexner's approach. Let's now turn to the treatment overreach objection.

Low Quality and Unnecessary Care

The US medical care system, and perhaps others with which I'm unfamiliar, offers an astonishing amount of poor quality care. I'll define poor quality in a couple of ways:

- Unnecessary care or waste: Care that generates no patient benefit according to comparative studies. In other words, outcomes from the control and treatment groups are the same or practically so.
- Low quality care: Care that generates some benefit to a clearly specified group of patients according to studies but that is offered to a wider group so likely generates no benefit to the wider population.

Consider statins to prevent heart attacks as a simple example.

TheNNT.com estimates the Number Needed to Treat (NNT) is 39 for people with known heart disease, meaning that for every 39 people with known heart disease who take statins for 5 years, 1 will avoid a heart attack.

The Flexnerian, caring physician might look at a patient *without* heart disease though and say 'This patient shares certain important biochemical and physiological factors with the studied group. I think patients without heart disease will also benefit though probably not quite as much' and prescribe statins to the wider group, expecting somewhat similar results.

But that's not the case, at least not by an order of magnitude. TheNNT.com estimates that only 1 in 217 patients without known heart disease will benefit by avoiding a heart attack over 5 years. [86]

Are 1 in 39 and 1 in 217 similar care quality? I think not. There seems to me at least, a qualitative difference here. I'll postulate as a thought experiment that if 1 in 39 is 'good quality care', then 1 in 217 is 'low quality care'.

And if 1 in 39 is 'low quality care', then 1 in 217 is 'unnecessary care or waste'. (Yes there's some benefit but differentiating value from waste at these levels strikes me like splitting hairs with an axe.)

And we haven't even considered the treatment risks.

Where would a caring physician, draw the line between high and low quality care, or between low quality and unnecessary? I certainly don't know.

And neither, I'll postulate, does a Flexnerian, fact based scientist.

Extending this argument – that care generating reasonable quality care to a narrowly defined group might generate low quality care to a larger group – uncovers tremendous waste throughout our medical system.

[86] http://www.thennt.com/nnt/statins-persons-low-risk-cardiovascular-disease/

David Cordani, Cigna's CEO estimates somewhat conservatively, that 'slippage' or care that should benefit patients but doesn't, accounts for at least 25% of all US healthcare spending but probably much more. [87]

Aetna, another huge national health insurer, says less conservatively on its website that

> Wasteful spending likely accounts for between one-third and one-half of all US healthcare spending. [88]

And the Dartmouth Atlas, generally considered the bible of healthcare utilization analytics, uses a widely quoted estimate of 'up to about 1/3' of all US healthcare spending but added 'we view this as an underestimate given the potential savings even in low cost regions'.[89]

I think they're right, especially about the 'underestimate' bit.

This shouldn't happen according to Flexner's German school view. Physicians should accumulate all the facts and develop the right interventions. That's what science is all about – being right.

They shouldn't miss 30 – 50% of the time!

Let's put some meat on this low quality and unnecessary care bone by reviewing a 2018 Washington State study.[90] The Washington Health Alliance analyzed utilization and billing data from 2.4 million commercially insured patients and found that 45% of services delivered were wasteful. 45%!

Why does our system engage is so much low quality care? I think our human foibles are largely to blame. These fall into 3 general categories:

- Physician role definition, basically 'this treatment *might* benefit my patient and I don't want to withhold any potential benefit'. We might call this the medical plausibility foible – 'it might happen';
- Tort issues, basically 'I might get sued it I don't do it'; and
- The Upton Sinclair insight that 'it's difficult to get a man to believe something when his salary depends on him not believing it.' That's why surgeons tend to recommend surgery, therapists therapy and urologists interpret PSA study results differently from the US Preventive Services Task Force.

None of these foibles fit Flexner's world view. They're not science and fact based.

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[87] Cordani's Keynote Address at the 2015 Yale Healthcare Conference

[88] http://www.aetna.com/health-reform-connection/aetnas-vision/facts-about-costs.html

[89] http://www.dartmouthatlas.org/keyissues/issue.aspx?con=1338

[90] First, Do No Harm: Calculating Health Care Waste in Washington State, February 2018, www.wacommunitycheckup.org

But they're all human characteristics and all impact the actual practice of medicine.

And they all, in various ways, touch on the third major flaw in Flexner's approach, the problem of patient preferences.

Preference sensitive decisions

Unnecessary care to one person might be reasonable care to another just like in our statin example above. John Wennberg, founder of the Dartmouth Institute calls this a 'preference sensitive' decision, meaning that one patient might opt for the statins while another declines and **both may be right**. This is a tacit admission that there are rarely clear cut medical decisions.

Wennberg calls these relatively few obvious medical decisions 'effective care' defined as services that, on the basis of reasonably sound medical evidence, are known to work better than any alternative. [91] This group of treatments accounts, based on his research, for only about 15% of all medical care.

It's the category in which Flexner's analysis applies and probably flourishes. Examples include childhood immunizations, lifesaving drugs for patients with heart attacks, and regular blood tests and eye exams for diabetics.

A far larger category is 'preference sensitive' care meaning care for which there is more than one option and in which different people can make different decisions and all be correct. Preference sensitive care requires judgment to evaluate the risk-benefit tradeoffs. Wennberg estimates it's at least 25% of medical care. [92]

We've already discussed preventive services – statins as primary prevention. Now consider treatment for torn or injured rotator cuffs. A surgeon will likely recommend surgery after examining the patient and identifying a rotator cuff tear. But a physical therapist, reviewing the same data on the same patient, might well suggest PT.

That rotator cuff situation arose for a student of mine. He recounted that he first saw an orthopedic surgeon who took an MRI, identified the cuff tear, showed him the picture and recommended surgery. 'I would have agreed to surgery' he went on to say, 'prior to hearing your discussions about preference sensitive decision making.' (See – there actually is some value to continuing education classes!)

'But I asked the surgeon if all physicians would agree with that analysis and recommendation.' (In other words, was this an effective care situation in Wennberg's terms?) The surgeon 'answered with a snort that some clinicians might suggest physical

[91] Wennberg, Tracking Medicine, pages 8 – 10, then Parts II and III

[92] Wennberg's definitions of 'preference sensitive' and 'supply sensitive' care overlap. According to some interpretations, 'preference sensitive' may describe 85% of medical care. The exact definition and amount doesn't matter for this analysis; it's a lot no matter how we define the terms.

therapy but that would be a waste of time and that I'd be back in his office shortly thereafter.' (In other words, this was a preference sensitive decision.)

My former student decided to try PT and reported when next I saw him that his shoulder was pain free and that he had regained 99%+ range of motion – it might have been 100% but he wanted to be conservative - in the same time as surgical recovery but without the costs and risks of surgery. 'Thanks' he smiled as he relayed the story.

Was the surgeon wrong? Probably not. Surgery probably would have worked.

Was the patient right to ask about therapy? Clearly. Not only did it solve his problem but he preferred it. His choice defined the best medical treatment.

None of this makes sense in Flexner's the-human-body-is-a-big-mechanical-device world view. There's an answer in the Flexnerian world and the doctor's job is to find it.

But in the real world, doctors have foibles. They don't always diagnose and prescribe correctly because the human body is so complex. They frequently overreach because of their desire to help, combined with their economic incentives. And often misunderstand their patients' preferences.

Together these three problems doom Flexner and his Germanic approach.

Atul Gawande summarized the modern physician's role more appropriately by acknowledging that emotion complements science and that each patient has individual hopes, aspirations, fears and conditions:

> The ideal modern doctor should be neither paternalistic nor informative but rather interpretive, helping patients determine their priorities and achieve them.[93]

That approach, far more than Flexner's, warms my heart as a patient.

[93] Sheri Fink, Atul Gawande's Being Mortal, NY Times Book Review, Nov 6, 2014

Review Questions

Answers on next page

1. What is medical reversal?

    a. Stop providing medical care when studies show that it doesn't benefit patients
    b. Save a dying patient. In other words, reverse the biological process
    c. Have a different specialist undo the treatment you previously received
    d. Have a doctor change his/her mind as in 'I thought that Treatment A would help you but I was wrong, so now we'll try Treatment B.'

2. What is one definition of low quality care?

    a. Care that generates some benefit to a clearly specified group of patients according to studies but that is offered to a wider group so likely generates little to no benefit to the wider population.
    b. Cheaper care when more expensive care is available
    c. Care based on virtually any non-state of the art equipment
    d. Low technology care when higher technology care is available

3. What is the NNT or Number Needed to Treat?

    a. The number of patients who need to receive a treatment or test in order for 1 patient to benefit
    b. The number of physicians who need to treat a patient for the patient to benefit
    c. The number of times a physicians must perform a test or treatment in order to achieve excellence at it
    d. The number of patients a hospital must treat in order to avoid harming any

4. What is a definition of unnecessary care?

    a. Care that does not generate any patient benefit
    b. Care that does not generate any physician income
    c. Care that does not generate any hospital income
    d. More expensive care when less expensive care is available

5. What lesson can we learn from Atul Gawande's analysis of cystic fibrosis treatments?

    a. That beneficial medical care is a combination of science, art, human interactions and emotion
    b. That physicians who follow the guidelines most closely generate the best patient outcomes
    c. That physicians who ignore guidelines generate the best patient outcomes
    d. That medicine is almost exclusively a science and the best physicians are those who understand the underlying biological, physiological and anatomical processes the best

6. What does preference-sensitive mean in medical care?

a. That different patients, with the same medical condition, can choose different treatments and all be right
b. That different patients, with the same medical condition, should always choose the same treatment
c. That there is 1 correct treatment for a given medical condition and dozens, perhaps, incorrect treatments
d. That doctors often prefer to give different treatments to similar patients simply to add variety to their professional lives

7. According to this chapter, is the human body a big mechanical device?

a. Yes
b. No. People consist of bodies and minds. The wisest physician understands this and seeks to engage both when prescribing medical care

8. This chapter suggested 3 reasons why physicians prescribe unnecessary and low quality care. Which below is not one of those reasons?

a. Physician hopes and role responsibility, basically thinking 'this treatment *might* benefit my patient and I don't want to withhold any potential benefit'
b. Tort concerns, basically 'I might get sued if I don't do it'
c. The Upton Sinclair insight that 'it's difficult to get a man to believe something when his salary depends on him not believing it.' That's why surgeons tend to recommend surgery, therapists therapy and some providers routinely recommend the most expensive interventions
d. The boredom defense, basically 'I didn't have a lot to do in the hospital that day to I decided to provide some unnecessary care to break up the boredom'

Review Questions

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Deductibles and Plan Management

Successful and sustainable healthcare cost control programs require that you teach your employees how to identify and avoid unnecessary, ineffective, wasteful and low quality medical care.

Attempts to control expenses with plan design changes or ancillary programs but without this educational component never live up to their billing.

Here's a condensed 50 year history of commercial health insurance:

- Cost sharing or 'major medical' in the 1970s was inflationary so replaced by
- First dollar coverage or HMOs – the opposite of cost sharing - in the 1980s and 90s. People found these plans too restrictive so replaced by
- High deductible plans - the opposite of first dollar coverage - post 2000. People complain about the deductible size and have trouble differentiating necessary and beneficial medical expenditures from unnecessary and wasteful.
- None of these programs integrated the necessary educational component into their fabric. Any would have been far more successful with it.

You've probably tried

- Wide hospital networks figuring more competition leads to lower costs and
- Narrow hospital networks figuring more carrier control leads to lower costs,
- Defined benefit plans to give employers more plan design latitude and
- Defined contribution plans to give employees wider choice, and
- Several other things that didn't work out too well …but never with a fully integrated employee education component.

The unwritten assumptions behind all these plans and design changes: the right financing program will motivate employees either to (a) use better medical care, (b) use less medical care or (c) use less expensive medical care.

History has conclusively shown these assumptions wrong.

Your employees will always find a way to access the medical services that they believe will improve their health whether or not that belief is valid. Attempting to influence their behavior with financing restrictions annoys them, doesn't work and doesn't improve their treatment outcomes or health.

The fundamental axiom
that any effective healthcare financing program honors

Good health is cheaper than bad health. That's universally and patently true.

So is its extension: the more quickly and efficiently you can turn an employee from sick to healthy, the less it costs, especially if you factor in absenteeism and presenteeism.

Better care quality – better outcomes in other words – is cheaper than poorer care. (Yes, I understand that some MRIs cost less than others. But I wonder how many are necessary and actually improve employee health.)

If your employees choose medical care based on likely outcomes, they'll get healthier and you'll save money. It's the best possible win-win.

But if your financing program tries to get them to choose medical care based on other criteria … not so much.

This presents a new focus

I suggest that corporate healthcare programs have as their #1 priority teaching employees how to choose care based on the outcomes they're likely to enjoy.

Design and develop that program first. This book can help. So can my online education program www.TheMedicalGuide.net.

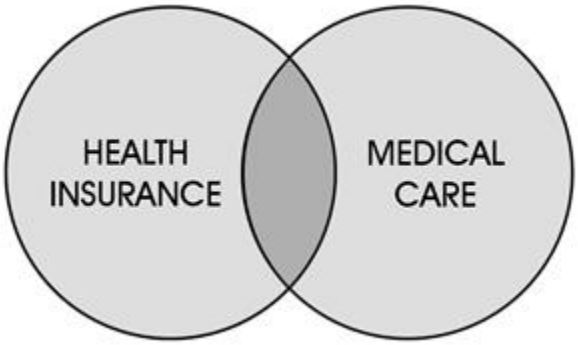
Then design a financing system to enhance and support your educational effort.

Don't do it the other way around.

The Old School approach currently in effect

Corporate engagement programs focus on understanding insurance coverage. Employees ask 'is the service covered?' and often conclude that 'if it's covered, I want it.'

The New School approach proposed in this book



The interesting work takes place in the overlap.

Corporate engagement programs include medical literacy.

Employees learn to ask 'is the service covered, *does it benefit me and do I want it*?'

What this chapter is about

Millions of well insured Americans get too many tests, take too many medications and have too many medical interventions. Our currently in-vogue benefits programs – deductibles, HSAs, wellness programs, etc. – haven't stemmed that tide.

Instead, I'll show you how to identify and avoid unnecessary, excessive, ineffective and low quality medical care.

I'll teach you the Five Most Important Questions to Ask Every Doctor, At Every Appointment, About Every Medical Intervention.

- If you learn, understand and ask these questions, you'll get better medical care with less risk. And you'll save a bunch of money along the way.
- If your company adopts this approach, it will save money and help its employees enjoy better outcomes with less intervention risk.

Too much care – and the wrong care - is bad for your health, both medical and financial. We currently waste according to many, up to $1 trillion annually. That's almost Russia's total GDP!

Consider these estimates.

- David Cordani, CEO of Cigna claims that slippage or 'things that don't work the way they're supposed to' accounts for at least 25% of all medical spending but 'probably much more'.
- Aetna's website says that 'wasteful spending likely accounts for between one-third and one-half of all US healthcare spending'.

- The Dartmouth Atlas, generally considered the bible of healthcare utilization analytics, suggests that up to about 1/3 of all US healthcare spending generates no patient benefit views this ‘as an underestimate given the potential savings even in low cost regions’.

The specifics may shock you. We Americans annually, for example,

- get 36 million prescriptions for a blood pressure lowering medication that doesn’t prevent heart attacks or save lives,
- spend $1 billion on a back procedure that works no better than a placebo,
- spend $3 billion on a knee procedure that can work less well than a placebo,
- spend over $2 billion on a cholesterol lowering drug that has not been shown to prevent heart disease or heart attacks according to its own advertising,
- and much more.

I’ll name names and provide details. I’ll also discuss some common medical procedures and show you that, for example,

- A quarter, maybe more, of the mastectomies in Connecticut generate no patient benefit.
- Half, maybe more, of the back surgeries in Fort Myers Florida generate no patient benefit.
- 30% or maybe even half of the c-sections in Florida, New Jersey and Louisiana provide no patient benefit.

This excess can lead to patient harms caused by medical care. Consider this trend:

- The 1999 Institute of Medicine report ‘To Err is Human’ found that up to 98,000 patients die annually from medical errors.
- Seventeen years later, a 2016 Johns Hopkins study found that over 250,000 Americans die annually from medical errors.

All this leads to a dismal healthcare summary:

- Americans spent $328 billion more for healthcare in 2015 than 2013. That’s about $1000 more per person.
- But we lived slightly less long in 2015. For the first time in decades, our national life expectancy actually fell despite the increased medical spending.

This gross inefficiency puts enormous responsibility on individual patients to choose healthcare wisely.

Step 1 of that process is acknowledging and understanding the problems.

Step 2 is learning how to make wise medical decisions.

How to make a wise medical decision

Follow this process to get better outcomes with less risk and at lower costs:

- First, determine how well the medical intervention works.
- Second, evaluate your treatment options. You almost always have them.
- Third, determine which doctor and hospital generates the best outcomes for your preferred treatment alternative.
- Fourth, if you find two or more equally excellent providers for your preferred option, consider price. But consider price fourth, only after you've completed the first three steps!

Asking the right questions gets you the information necessary for wise decisions.

But asking the wrong questions gets you … something else. Maybe useful information, but maybe just some of the most important information, maybe irrelevant (even if true) facts, maybe impressions, maybe incorrect information, maybe noise, who knows.

Obtaining the relevant information is a skill that most of us lack. In fact, according to the US Department of Health and Human Services, only 12% of Americans are medically literate, meaning they have the skills necessary to assess likely treatment benefits and harms though I suspect the real number – the percentage of people who understand and use the tools described in this book – is actually much lower.

Less medically literate folks have higher hospitalization rates and medical costs, and poorer health outcomes. This medical literacy problem arises because most of us haven't been taught how to approach medical investigations. This book will correct that problem.

The Goldilocks Rule
not too little, not too much, but just right

Too little medical care leads to undertreated patients and poorer-than-optimal outcomes.

Too much medical care leads to overtreated patients, higher-than-necessary treatment risks, higher-than-necessary medical costs and potentially poorer-than-optimal medical outcomes.

Inappropriate medical care leads to suboptimal outcomes, excessive costs, patient dissatisfaction and sometimes lawsuits.

Appropriate medical care minimizes your chance of medical harm but maximizes your chance of medical benefit.

Why can't I simply follow my doctor's advice and skip the rest of this chapter?

You always should consider your doctor's advice! But temper it with our questions for two main reasons:

First, doctors generally worry more about undertesting and undertreating than overtesting and overtreating patients. (This highlights a difference between advice giving and advice receiving, a situation I'll discuss in Question 4.)

- As trainees, they're upbraided for having too little information about their patients not too much information, so learn to overtest.
- As doctors, they're typically paid to do more not less, so may overtreat.
- As caring human beings, they want to do something to relieve your suffering, not nothing.
- As professionals operating in our legal system, they're more likely to be penalized for not doing something than for doing something extra.

One result is that about a third of patients annually receive one or more useless tests or treatments.

- Dr. Atul Gawande, a famous Boston area surgeon, found that 7/8ths of his patients had.
- Millions more, he writes, 'receive drugs that don't help them, operations that don't make them better and scans and tests that do nothing beneficial but often cause harm.'

Second, many doctors assume they know what patients want, their risk / reward tradeoff decisions. But studies show doctors can get this wrong.

- One, for example, showed that most doctors assume breast cancer patients rate 'living as long as possible' as their primary goal. But only 59% of patients agreed. Doctors were wrong about 40% of the time.
- A second showed that 40% of men with benign prostate disease opted against surgery once they were fully informed of surgical risks and benefits.
- A third showed that almost 20% of patients suffering from chest pain diagnosed as stable angina opted against surgery when fully informed of their treatment options and likely outcomes.

A fundamental cause of these problems is 'information asymmetry' or 'your doctor knows more about medical care than you do so thinks he or she understands your treatment goals and preferences too.' Gawande writes

We can recommend care of little or no value because it enhances our incomes, because it's our habit, or because we genuinely but incorrectly believe in it.

Patients often want to do their homework but don't know how. Some attempt to become mini-MDs through online research. That almost certainly won't protect against unnecessary, excessive or inappropriate care; the research is clear.

Instead this book will show you how.

It will put you onto a level (or, at least, a more level) field so you can participate more wisely and effectively in your own medical decision making.

The 5 Question Checklist
Medical Literacy in Practice

*If you **understand** these questions, you're medically literate.*

*If you **ask t**hem, you're ahead of the curve.*

*If you **get them answered**, you've maximized your chance of benefit and minimized your risk of harm.*

In a typical appointment, you and your doctor discuss a medical problem and your doctor recommends an intervention.

Ask these 5 questions about that recommendation:

- Has it been tested for the outcomes that concern me?
- Out of 100 people like me, how many benefit and how many are harmed?
- Is it overused?
- Would most physicians make the same recommendation or might some suggest something different?
- How many patients like me do you treat annually?

These deceptively simple questions are based on extensive research and analysis. The better you understand them and the more you integrate them into you medical thinking, the better care you'll get.

Ask them of every doctor, at every meeting, about every medical intervention.

You can use this list as a script. Feel free to share it with your doctors.

Question #1
Has it been tested for the outcomes that concern me?

Testing determines how well a medical intervention works in real life, on real people.

When testing, medical researchers typically divide a large group of people in half to make 2 identical smaller groups. They give one group the treatment but not the other.

Then researchers watch both groups for a time period, say 5 years, and note medical differences like the number of heart attacks, deaths or strokes. They attribute any differences to the intervention.

Simple! (Actually not simple at all. Medical research methodology is very complicated and worthy of many books, each much longer than this.)

But what happens if you don't have 5 years available? Say that a new blood pressure lowering drug just came on the market, looks promising and you, a person with high blood pressure, have a doctor's appointment the next day.

Your doctor may say 'this is the newest generation of blood pressure lowering medications and has been configured to reduce the side effects of the old drug. I suggest you try it and see how you tolerate it.'

In theory the new drug works well. But it hasn't been tested yet in real life, on real people, for years.

How well does it work?

Dr. Vinay Prasad, assistant professor of medicine at the Oregon Health and Sciences University, studies that issue. He asks 'how well do medical interventions work if they haven't been tested over long time periods on real people?'

How well, in other words, did medical theory hold up to subsequent testing?

Prasad and his team conducted a fascinating study. They reviewed every article in the New England Journal of Medicine between 2001 and 2010 and pulled out those that studied and tested an established medical practice, one commonly used on patients like intensively lowering blood sugar in Type 2 diabetics to reduce cardiovascular events … interventions, in other words, that made medical sense and that the medical community embraced.

363 studies qualified.

Prasad then asked 'Of those 363 studies, how many affirmed the practice?' i.e. found that it benefited patients.

38% affirmed the practice, 40% negated the practice, (found it ineffective or harmful) and 22% were ambiguous.

Dr. Prasad's research shows that if you base your medical decisions on biology, physiology, anatomy and logic – but not on test results – you are wrong about as often as you are right.

We'll call this Prasad's Law and refer to it throughout this book.

According to Dr. Prasad, rather than focusing on outcomes, patients often

> *gravitate toward the nuts and bolts — what does it do, how does it work?*
>
> *But the real question is: Does it work? What evidence is there that it does what you say it does? What trials show that it actually works?*
>
> *You shouldn't ask how does it work, but whether it works at all.*

Why is this the case?

Our bodies are enormously complicated and our understanding of medical risks, causality and treatment impacts is surprisingly limited. Sometimes (often?) rather than using the most important biological or anatomical factors in our medical theories, we use the most easily accessible and measurable.

Here's an analogy to illustrate:

Assume that our bodies are controlled by a wizard located in our brain, more or less like the fellow behind the curtain in the Wizard of Oz.

The wizard in our brain has a wall of knobs that control body parts and functions - one controls cholesterol levels, another blood pressure, a third bone density, a fourth eye ball pressure, etc.

If each knob is 1 inch in diameter and 1 inch apart (so the wizard can get his fingers around it) the wall is six and a half feet high and half a mile long!

Turning any one knob affects the value of some others, which in turn affect still others.

We simply can't anticipate all the initial effects, rebound effects, interactions and modifications from turning a knob or two.

Medicine rarely works in the simplified 'if A causes B, and B causes C, then A causes C' scenario. That's why we need to test.

Wise patients always ask 'has it been tested for the outcomes that concern me?'

If it has been tested, then your doctor can tell you how well it works. All physicians today can access extensive databases of medical studies…in their offices…in real time so they can answer this question.

If answers exist.

Asking this question may motivate your doctor to refresh his or her memory and look for new studies that have been published since the last time he or she checked.

You and your doctor can then decide if the intervention works well enough for you. I'll show you how in the next section.

But you may learn that the intervention has not been appropriately tested. In that case, you know your chance of benefit is only 50/50. Prasad's Law tells us that.

And even if it benefits you, it might not benefit you very much.

Examples of medical care that should work, but doesn't; Case studies that illustrate the power of asking this question

I'll present 6 case studies to show the power of asking 'has it been tested for the outcomes that concern me?' and why you need to ask this question about every medical intervention:

- Extended release niacin, a 'good cholesterol' boosting drug
- Atenolol, a blood pressure lowering drug
- Ezetimibe, a cholesterol lowering drug
- Vertebroplasty, a back surgery technique
- Arthroscopic knee surgery, a knee osteoarthritis remedy
- Rest after heart surgery, an historical example to tie everything together

Extended release niacin. Niacin, a B vitamin, has been shown in tests to raise good (HDL) cholesterol. More good cholesterol is associated with a lower heart attack risk, so artificially raising it should benefit patients.

Niacin doesn't lower total cholesterol like commonly prescribed statin drugs.

Cardiologists have prescribed various niacin products for years. One, Niaspin manufactured by Abbott Labs, generated about $900 million in 2009 sales.

Then in 2011, the AIM-High trial of niacin effectiveness showed that, while extended release niacin is associated with higher HDL levels and lower triglyceride levels, there was no significant reduction in cardiovascular events.

In 2013, a second study, this time of Merck's niacin drug Tredaptive found the same thing: no difference in coronary event rates between people taking Tredaptive with a statin, and those just taking the statin.

Two studies on two different niacin based drugs arrived at the same conclusion: niacin doesn't reduce rates of heart attacks or strokes.

This is an example of Prasad's Law: interventions that appear to make biological sense and that are adopted before publication of comparative tests are proven ineffective or harmful about half the time when they finally are tested.

Atenolol, a blood pressure lowering drug. High blood pressure is a common condition in which the long-term force of the blood against your artery walls is high

enough that it may eventually cause health problems such as heart disease. High blood pressure can damage the heart and coronary arteries and lead to heart attacks, strokes and death, among other events.

Lowering blood pressure, therefore, should reduce the number of heart attacks, strokes and deaths. So strongly do physicians subscribe to this theory that they write millions of blood pressure lowering medication prescriptions annually, worth billions of dollars, including 36 million prescriptions for Atenolol in 2010.

Atenolol recorded $161 million in 2014 sales.

Unfortunately comparative study hard outcomes do not always support the theory.

Start in 2002 with publication of the LIFE study on two of the most commonly prescribed blood pressure lowering medications called beta blockers, Losartan and Atenolol. Atenolol placed 2nd in preventing heart attacks and strokes.

Was that because Losantan was superior or because Atenolol was actually ineffective?

That question was answered in a 2004 meta review (a compilation that integrates results from several different studies to develop a single conclusion) in the Lancet entitled ‘Atenolol in hypertension: is it a wise choice?’

Those reviewers found that

> there were no outcome differences between Atenolol and placebo in the four studies, comprising 6825 patients, who were followed up for a mean of 4.6 years on all-cause mortality, cardiovascular mortality, or myocardial infarction [heart attacks].

The PubMed abstract summary concludes:

> Our results cast doubts on atenolol as a suitable drug for hypertensive patients.

The theme was then picked up in the March 15, 2005 issue of The American Family Physician, a publication of the American Association of Family Physicians. Dr. Henry Barry’s article ‘Should Atenolol Be Used for Hypertension?’ concluded that, though atenolol did lower blood pressure,

> It does not appear to reduce the rates of cardiovascular mortality or morbidity.

Let’s summarize:

- One major, high quality comparative study in 2002 concluded Atenolol is ‘inefficient’
- A large meta study in 2004 concluded ‘no outcome differences’ as compared to a placebo and cast doubts on Atenolol as a suitable drug for hypertensive patients.

- At least one article in a professional publication in 2005 seriously questioned the use of Atenolol.
- Five years later, docs wrote 36 million Atenolol prescriptions and nine years later Atenolol achieved $161 million in annual sales.

Medically literate folks – the ones who ask the questions in this book – could have saved those millions of dollars by avoiding Atenolol.

Would they have made wise decisions?

In January 2017, Cochrane released an update on beta blocker research. Cochrane researchers reviewed all relevant beta blocker studies published through June 2016, most of which focused on Atenolol. Their conclusions were entirely in line with the research discussed above, specifically that beta-blockers have little to no effect on heart attacks or mortality and are inferior to other anti-hypertension drugs.

I hope you're beginning to understand why you need to ask 'has it been tested for the outcomes that concern me?' about every medication. Even for medications that have been around for a long time.

Ezetimibe, a cholesterol lowering drug. Lower cholesterol is associated with fewer heart attacks. Ezetimibe, typically marketed as Zetia, blocks cholesterol absorption in the small intestine, unlike the more commonly prescribed statins that block absorption in the liver.

- Some patients can't tolerate statins.
- Others might not achieve their desired cholesterol reduction goals with statins and lifestyle changes alone.

Ezetimibe offers benefits to both types of patients. Consider this statement on Zetia's website, zetia.com from about 2011 – 2016.

Adding Zetia to a statin is proven to help reduce cholesterol more than a statin alone.

Zetia's sales exceeded $3 billion annually from 2013 - 2016.

But read the next sentence on Zetia.com, this one in bold:

Unlike some statins, Zetia has not been shown to prevent heart disease or heart attacks.

The New York Times review of Zetia's 2008 clinical trial, for example, concluded that no trial has ever shown that it can reduce heart attacks and strokes.

Note the difference between cholesterol lowering (Zetia has been shown to be good at this) and heart attack prevention (Zetia has not been shown to be good at this).

Then in 2014, the IMPROVE-IT study showed a ‘modest’ though statistically significant benefit of Vytorin (combination of Zetia and Zocor, a statin) over a statin only, but just for a very select group: patients who had already suffered a heart attack or experienced chest pain.

This underscores the need to ask your doctor regularly ‘Has it been tested for the outcomes that concern me?’ Be clear about the outcomes that concern you – heart attack reduction or cholesterol lowering. They’re not necessarily the same.

- Patients who conflated the two and focused on Zetia.com’s first claim that Zetia reduces cholesterol might have opted to take the medication but then only have received the cholesterol lowering benefit, not the heart attack reduction one. On the other hand
- Patients who relied only on the website’s second sentence ‘Zetia has not been shown to prevent heart disease or heart attacks’ - and who had previously had a heart attack - might have missed the heart attack prevention benefit discovered in 2014.

See why being medically literate is so important?

Vertebroplasty to relieve back pain Let’s switch focus now from medications to procedures. Consider vertebroplasty, a procedure to inject medical grade cement into fractured vertebra (back bones) to reduce back pain.

In 2008, the US market for vertebroplasty was $245 million.

Then in 2009 the New England Journal of Medicine published two studies comparing vertebroplasty to a control or placebo group that received lidocaine (a topical skin numbing agent), massage and aromatherapy to reproduce operating room smells.

- The Australian study found ‘no beneficial effect’ of vertebroplasty compared to the control group.
- The Mayo study concluded that patient improvements were similar in the placebo and experimental groups.

Vertebroplasty, in other words, worked as well as, but no better than, the safer and far cheaper placebo.

$245 million on a procedure that works no better than a placebo?

See why asking the ‘has it been subjected to comparative studies?’ question is so important?

Surgery for Knee Osteoarthritis Knee osteoarthritis is a degenerative disease that causes pain, stiffness and decreased knee function.

Arthroscopic surgery, including lavage (removal of particulate material such as cartilage fragments and calcium crystals) and debridement (surgical smoothing of articular surfaces and osteophytes) was the widely used treatment in the early 2000s despite the fact that, according to the New England Journal of Medicine in 2008 ‘scientific evidence to support its efficacy is lacking’.

Estimates of the number of knee arthroscopies performed annually in the US vary, and not all address osteoarthritis so we’ll have to estimate the size of this problem:

- A 2002 New England Journal of Medicine study estimated 650,000 procedures at $5,000 each, creating a $3.25 billion market.
- A 2014 NEJM study estimated the market at 500,000 knee arthroscopies at about $20,000, generating a $10 billion market.
- Vinay Prasad in his 2015 book Ending Medical Reversal estimated the market at 700,000 patients spending $4 billion.

How poorly does the scientific evidence support the efficacy of arthroscopic surgery to treat knee osteoarthritis?

- A 2008 New England Journal of Medicine published study concluded that they ‘failed to show a benefit of arthroscopic surgery for the treatment of osteoarthritis of the knee.’
- This followed a 2002 comparative study which concluded ‘At no point did [the] arthroscopic-intervention group have greater pain relief than the placebo group.’
- The 2002 study concluded ‘This study provides strong evidence that arthroscopic lavage with or without debridement is not better than and appears equal to a placebo procedure in improving knee pain and self-reported function.’

Those disagreeing with these study conclusions present the usual ‘weak study methodology’ case, primarily, I would suggest, to protect their incomes. Even at our lowest market estimate - $3 billion – that’s certainly a big incentive for lots of people to protect their turfs.

These studies raise some uncomfortable questions:

- Why, after the 2002 paper, did doctors continue to prescribe this procedure and patients have it?
- Why after the 2008 study did both parties continue to use it?

This is an extension of Prasad’s Law that says treatments adopted absent testing are proven ineffective or harmful about half the time. Here we have treatments used even after studies showed no patient benefit, underscoring the need for you to ask this question and insist on a clear answer about every medication and procedure.

Asking encourages your doctor to check (again?).

Never hurts but may help.

A lot!

Rest after heart surgery, an historical example to tie all this together.

We'll start in the early 1900s with Dr. James Herrick's advice then fast forward to today's protocols.

Herrick was an extraordinarily influential coronary care researcher who received impressive accolades from both the Association of American Physicians and the American Medical Association.

In his major 1912 paper, Herrick wrote that, after having a heart attack or heart surgery 'the importance of absolute rest in bed for several days is clear'.

Herrick's recommendations were adopted by most hospitals. Over time they extended Herrick's advice of absolute bedrest from several days to a few weeks.

Indeed, thirty four years after Herrick's paper, Dr. Thomas Lewis published his own coronary care textbook Diseases of the Heart and elaborated on Herrick's prescription:

Rest in bed should continue for 4 – 6 weeks to ensure firm cicatrisation of the ventricular wall … Patients have lost their lives … by neglect of these precautions.

Lewis' justification came from pathological studies showing that it can take 6 to 8 weeks for firm scarring of the lesion to occur. Rest for that amount of time was considered necessary to minimize ventricular rupture risks.

Dr. Paul Woods, another coronary care authority, reinforced that message in his textbook Diseases of the Heart and Circulation in 1959, 13 years later, recommending 3 – 6 weeks of bedrest or more depending on the severity of the heart attack.

Thus at least three medical textbooks written between 1912 and 1959 agreed: post heart attack and heart surgery, patients should rest, pretty much for as long as possible.

But by the 1960s medical opinion reversed. Eugene Braunwald, author of his own 2007 cardiology textbook, claims doctors began to realize that

Prolonged bed rest, which had been routine since Herrick's day, could actually be harmful in some patients by leading to venous thrombosis and fatal pulmonary thromboembolism. In uncomplicated cases, the duration of absolute bed rest was shortened to about five days.

Patients who asked 'what do you recommend doc?' in the 1940s and 50s would have received the long bedrest recommendation.

But patients who asked the same questions in the 1960s and 70s would have received the short bedrest advice.

And today, patients are advised to walk every day during the first 6 – 8 weeks post heart surgery, the exact opposite of Herrick's, Lewis's and Woods' recommendations.

How can 'rest' and 'don't rest' both be right? They obviously can't. At least one is wrong. Drs. Herrick, Thomas and Woods offered their best guesses backed up with biological justifications. In effect, they said 'our best guess is that the risk of ventricular rupture exceeds the risk of venous thrombosis and fatal pulmonary thromboembolism.'

Their guesses were really testable propositions which, apparently, weren't actually tested until relatively recently. When tested, they learned that thrombosis risks exceed ventricular rupture risks. Thrombosis and embolism risks are so high in fact that today's patients are advised not even to stand in one place for more than 15 minutes! The exact opposite of Herrick's, Thomas's and Woods' advice.

That's why wise patients don't research why a specific medical recommendation makes sense. Doctors and scientists can justify a wide range of (often conflicting) recommendations, just as we've seen here. Prasad's Law tells us that absent testing for specific outcomes of concern, those recommendations are wrong about half the time.

Instead of relying on theory, wise patients rely on test data, the facts.

The tragedy of this story is that some heart attack recovery patients presumably died in the last century from following the established protocols and textbook advice.

They didn't ask if the recommendations had been tested.

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Dozens, hundreds, perhaps even thousands of other 'makes sense but doesn't work' situations exist. Here are some relatively-easy-to-understand additional examples of Prasad's Law from his book Ending Medical Reversal.

- Estrogen replacement to reduce heart attacks in postmenopausal women. Testing showed no heart attack rate reduction.
- Coronary stent insertion to prevent heart attacks in patients with stable angina. Testing showed no impact on heart attack rates over time.
- Prophylactic antibiotics for people with persistent Lyme disease symptoms and a history of Lyme disease. Testing showed no symptom reduction.
- Lowering diabetic's blood sugar (A1c) below 7% to prevent heart attacks with an intensive drug regimen. Testing showed an increase in mortality rates.
- Calcium plus vitamin D to reduce the risk of hip fractures. Testing showed no hip fracture rate reduction but an increase in kidney stone risk.
- Withholding birth control pills for women with lupus to reduce the rate of lupus flares. Testing showed no increase in flares.

- Saw palmetto for benign prostatic hyperplasia. Testing showed no benefit measuring multiple outcomes despite more than 2 million men using it.

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ChoosingWisely, a program organized by the American Board of Internal Medicine Foundation to combat wasteful, unnecessary and harmful medical care lists 300+ more examples of medical practices that, according to testing, should not be used. ChoosingWisely is a wonderful resource for well informed patients. Here are a few examples for illustration purposes.

Don't automatically use CT scans to evaluate children's minor head injuries.

Avoid doing stress tests using echocardiographic images to assess cardiovascular risk in persons who have no symptoms and a low risk of having coronary disease.

Don't perform EEGs (electroencephalography) on patients with recurrent headaches.

Don't routinely treat acid reflux in infants with acid suppression therapy.

Don't recommend prolonged or frequent use of over-¬the-¬counter (OTC) pain medications for headache.

Don't routinely prescribe antibiotics for inflamed epidermal cysts.

Don't use systemic (oral or injected) corticosteroids as a long-term treatment for dermatitis.

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When you ask 'has it been tested for the outcomes that concern me?' you may learn how well it works. In that case you and your doctor can determine if the benefits are substantial enough, and risks low enough, for you to have the treatment. I'll show you how in the next section.

But you may learn that the treatment has not been tested in real life, on real people.

In that case, remember Prasad's Law.

Applying Prasad's Law to long term medication use

Some medications may have been tested for 1 year, say, but be prescribed for longer. What are the 8, 15 or 20 year effects, both positive and negative? We often don't know.

This is a version of Prasad's Law. In this case, the untested treatment is the time horizon. A medication with few side effects over 6 months may have major side effects over 10 years.

You can rephrase the testing question to 'Has it been tested for the length of time that I'm likely to be on it?'

Summary of Question 1
What We Have Learned So Far

Comparative tests tell us how well medical interventions work.

Wise patients ask ‘Has it been tested for the outcomes that concern me?’ and base their medical decisions on comparative test results. I’ll show you how in the next section.

Importantly, we also learned that interventions that make biological and anatomical sense are shown to be ineffective or harmful about half the time in comparative tests.

Patients who base their medical decisions on biology and logic – but not test results – are wrong about as often as they’re right.

Question #2
Out of 100 people like me, how many benefit and are harmed?

Determining how well care works from medical tests

Once you learn that a treatment has been tested, you and your doctor can discuss the impact. Use this phrasing:

- Out of 100 people like me, how many benefit? And
- Out of 100 people like me, how many are harmed?

This tells you how well the treatment works in testing circumstances. We’ll discuss how well it may work in real life circumstances in the next chapter.

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Ask ‘out of 100’ to get a number for your answer. ‘16’ conveys more information than ‘some’, ‘many’, ‘a few’ or ‘quite a few’.

Some patients may decide that 16 people benefiting is good enough to have the treatment while others say ‘only 16? That’s not very many.’ Different people can reasonably disagree.

Statements like ‘this treatment cuts your risk by 36%’ don’t answer the question! 36% of what? Percentage answers may confuse more than they illuminate.

Remember that Prasad’s Law applies if your doctor can’t answer the ‘of what’ question above.

Ask about ‘people like me’ because treatments can have different impacts on different demographic groups. Consider these examples.

Age: The American Academy of Pediatrics recommends against prescribing cough and cold medications for respiratory illnesses in children under 4 saying ‘these products

offer little benefit to young children and can have potentially serious side effects'. They're apparently fine for 6 or 8 year olds though.

… out of 100 people … these medications work, but

… like me … not if you're under 4 years old

Gender: In 2014, the Food and Drug Administration cut the recommended dose of Ambien, a sleep aid, in half for women after determining that men and women metabolize it differently. Women, it turns out, have more of the drug in their bodies the next morning, putting them at higher risk of impaired driving.

… out of 100 people … the medication works, but

… like me … not so well for women

Other patient differences exist but we don't always know how frequently. You and your doctor may have to estimate the impact on people like you.

Identify the benefits of interest to you. If you take a heart attack prevention medication ask 'out of 100 people like me, how many avoid a heart attack by taking this medication?'

- Remember our discussion of Atenolol and Zetia in the last section.

If you want to reduce your back pain, ask 'out of 100 people like me, how many enjoy less back pain as a result of this procedure?'

- Remember our discussion of vertebroplasty and knee surgery in the last section.

Beware of listing 'lower my cholesterol' or 'lower my blood pressure' as the benefit you hope to achieve. We discussed earlier how these 'test benefits' may or may not correlate closely to 'patient' or 'event' benefits. Focus on the benefits you hope to achieve.

And be as specific as possible.

Some case studies to indicate the power of asking this question

Out of 100 people like me, how many benefit and are harmed?

Consider antibiotics to treat pediatric ear infections, a quite common childhood problem. Ear infections can be painful to the child and frightening to the parents who, not unreasonably, want to do something to help.

Ear aches are sometimes viral and sometimes bacterial. Doctors often prescribe antibiotics.

This intervention – antibiotics to treat pediatric ear aches - has been studied so Prasad's Law doesn't apply.

A meta review – that's a compendium of several individual studies – of 15 studies on 4100 kids concluded that 6 in 100 who took antibiotics reported less ear pain after 2 – 7 days; 94 in 100 did not enjoy less ear pain as a result of the antibiotics. Most had a complete recovery within 2 – 7 days without the medication.

But 11 in 100 who took antibiotics suffered uncomfortable side effects like diarrhea.

- Out of 100 kids who take antibiotics to treat ear infections, how many benefit by enjoying less ear pain in 2 – 7 days? 6
- Out of 100 kids who take antibiotics to treat ear infections, how many are harmed by diarrhea or other uncomfortable side effects? 11

Now you have sufficient information to discuss this intervention with your pediatrician. Does it work well enough for your child? Some parents may decide yes, others no.

But in both cases, it's an informed decision made by a parent in light of the facts.

Dozens of similar cases exist. One website www.TheNNT.com lists about a hundred. ChoosingWisely www.ChoosingWisely.org takes a slightly different approach and lists hundreds more. Both sites will provide good information for you to discuss with your doctor.

Out of 100 people like me how many benefit and are harmed?

We already discussed how age and gender can impact outcomes. I'd like to explore a different, infrequently discussed but vitally important like me category: social status.

I'll define social status ambiguously as a combination of wealth, income and sense of control over your life, analogous to the way former US Supreme Court Justice Potter Stewart defined pornography: you know it when you see it.

The Whitehall studies in Britain first identified and quantified social status' impact on health. These studies tracked disease and death rates by job and rank in the British civil service and their conclusions have been reproduced in other studies, in other countries.

Whitehall found that low social status folks had higher disease and death rates than high status folks. Surprisingly – and this is the big deal - this was not only due to measureable factors like cholesterol, blood pressure, blood sugar, smoking, obesity or exercise rates.

After correcting for those factors, the lowest status folks were about twice as likely to have heart attacks, develop other diseases and die as the highest status ones.

Whitehall also found a gradient: the higher you are on the social status scale, the lower your disease and death rates and the reverse, the lower you are on the social scale, the higher your disease and death rates.

Over and above specific disease risk factors, Whitehall concluded, there is something about social status independently that impacts people's health. Harvard School of Public Health Professor Nancy Kreiger, whose own work affirms Whitehall's conclusions, put it this way:

> An individual's health can't be torn from context and history. We are both social and biological beings—and the social is every bit as "real" as the biological.

In line with this analysis, a major 2016 study in JAMA, the Journal of the American Medical Association found that the life expectancy gap

between the richest 1% of Americans and the poorest was about 12 years on a gradient similar to Whitehall's. In an accompanying editorial, Nobel laureate Angus Deaton emphasized the impact of income and social status on health and castigated traditional medical thinking:

The finding that income predicts mortality has a long history… the mortality gradient by income is found wherever and whenever it is sought…but the medical mainstream emphasizes biology, genetic factors, specific diseases, individual behavior, health care, and health insurance.

Consider the medical impacts of your own social status. Imagine your doctor says 'your cholesterol level is slightly high. The guidelines suggest lowering it. I'll prescribe a medication.'

- If you're a low status person (thus facing higher than average heart attack risks) you may be undermedicated, leaving you exposed to disease harms.
- But if you're a high status person (thus facing lower than average heart attack risks) you may be overmedicated, exposing you unnecessarily to medication harms.

Try to include social status factors in your 'like me' discussions with your doctor along with age, gender, general health status, family history etc. One good information source is the 2004 report 'Work, Stress and Health: The Whitehall II Study'. Share it with your doctor. It's surprisingly easy to read and it may change the way you think about medical care.

It certainly did for me.

'Out of 100 people like me…' or 'The guidelines say…'
Case study of hypertension

The American Heart Association recommends that people over 60 years old begin treatment for high blood pressure when their readings exceed 150/90.

But out of 100 people like that, how many benefit by following those guidelines?

Some answers come from a 2009 Cochrane report that summarized 15 trials totaling 25,000 subjects over age 60 with moderate to acute hypertension followed for average 4.5 years.

Out of 100 people over 60 years old with moderate to acute hypertension, how many avoid cardiovascular disease or death over 4.5 years?

Answer: About 4

Here are Cochran's numbers:

- Risk of cardiovascular death or disease without taking hypertensive medication: 14.9/hundred. This is the control group.
- Risk of cardiovascular death or disease among patients taking hypertensive medications: 10.6/hundred. This is the test group.
- Medication benefit: 4.3 fewer deaths or diseased patients/hundred (4.3%)

I don't know how many, if any, were harmed by the medication.

Which question gives you the best information and best helps you make the wisest decision: 'Out of 100 people like me, how many benefit?' or 'What do the guidelines say?'

It's your call.

Summary of Question 2
What We Have Learned So Far

Question 2 builds upon the lessons of Question 1.

Question 1 was 'Has it been tested for the outcomes that concern me?' We learned that comparative tests identify the benefits and harms of a medical intervention.

- Importantly, we also learned that medical interventions that have not been subjected to comparative testing are ineffective or harmful about half the time. We called this Prasad's Law.

Question 2 showed how to quantify the benefit and harm impacts. We learned to ask

- Out of 100 people like me, how many benefit? And
- Out of 100 people like me, how many are harmed?

We also learned

- Why to ask ‘out of 100’ and not to accept answers like ‘this treatment reduces you risk by 36%’.
- Why to ask about ‘people like me’, including about people in your socio-economic demographic.
- Why ‘patient outcomes’ always matter but ‘test outcomes’ may not.

Question #3
Is it overused?

Sometimes beneficial care is overused so may not benefit you

This question acts as a yellow warning light to wise patients: proceed but proceed cautiously.

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Testing sometimes shows that a treatment works well on a narrowly specified group of patients but, in the real world, doctors may offer it more widely, perhaps hoping to benefit even more patients.

Examples include mastectomies, back surgery, c-sections (I’ll discuss these three in some detail below), tonsillectomies, antibiotic prescription, prostate surgery, MRI use, coronary angioplasty and many more.

This results in treatment variation meaning that different doctors may treat similar patients differently.

Vast amounts of research into this phenomenon have identified three significant issues.

First, about 85% of the time, two or more treatments can generate the same patient outcomes.

Mastectomy or lumpectomy for early stage breast cancer, surgery or physical therapy for back pain, injections or physical therapy for frozen shoulder, etc. Though the outcomes may be the same, the process, pain, risk, recovery period, family impact and cost can vary widely.

Second, when faced with care options, many patients delegate decision making to their doctors. This forces the doctor’s preferences, not the patient’s, to define the treatment decisions and doesn’t always serve the patient’s best interests.

We’ll explore some implications in Question 4, the next section.

Third, the higher the supply of medical services in a region, the more frequently patients access those services: the more hospital beds, the more hospitalizations, the more MRI units, the more MRI tests, the more orthopedic specialists, the more orthopedic surgeries etc.

We'll discuss some implications in this section.

Excessive utilization raises costs and risks but doesn't improve patient outcomes. It may even worsen them since patients expose themselves only to potential treatment harms, not benefits.

We'll explore three case studies of treatment variation. Two are based on Dartmouth Atlas of Healthcare information: early stage breast cancer treatment in Massachusetts and Connecticut and back surgery in southwestern and southeastern Florida. The third is hospital baby delivery patterns, specifically c-section rates.

These are 3 of dozens I could have chosen. As you read them, consider how patients who have the more aggressive, excessive and overused treatments may actually end up worse off.

Case Study: Mastectomy Rates in Massachusetts and Connecticut

Female Medicare beneficiaries in Connecticut, using Connecticut hospitals, get about 40% more mastectomies per 100,000 than do similar women in Massachusetts. This has been roughly constant since 2008.

How can we determine if these surgical rate differences are driven by patient health differences or physician treatment orientation differences?

We'll first consider patient differences. The American Cancer Society tracks cancer incidence and mortality rates by state. They show that the breast cancer incidence rates for 2011 per 100,000 women are virtually identical in both states:

Based on breast cancer incidence rates alone the treatment variation appears driven by physician orientation, not patient disease rate differences.

Did the Connecticut women benefit from more mastectomies?

The American Cancer Society also tracks breast cancer mortality rates in each state. That's the rate at which women die of breast cancer. Again, they're virtually identical in both states.

If the higher rate of mastectomies in Connecticut from 2008 – 2011 generated patient benefit, we would expect to see lower Connecticut breast cancer mortality rates in 2011-2012 than in Massachusetts. That didn't happen.

Women asking the standard treatment questions – is this a good treatment? Do you get good results? Would you recommend this treatment for your wife, daughter or sister? – would get the same answers in Massachusetts and Connecticut.

But the Connecticut women wouldn't avoid those additional mastectomies.

The higher mastectomy rate in Connecticut generates no patient mortality reduction benefit. It only raises patient risks and costs.

Asking the ‘is it overused in this hospital or region’ question would help motivate physicians and well informed patients to review these kinds of data.

Follow up with ‘out of 100 women like me, how many benefit and are harmed by mastectomies?’

Really well informed women might also ask ‘would most physicians make the same treatment recommendation or might some suggest something different?’ I’ll introduce that question in the next chapter.

Case Study: Back Surgery in Florida

Medicare beneficiaries in southeastern Florida, around Miami, are about half as likely to have back surgery as Medicare beneficiaries in southwestern Florida, around Fort Myers.

Are retirees in Miami medically different from retirees in Fort Myers? John Wennberg, founder of the Dartmouth Atlas and professor emeritus at the Geisel School of Medicine at Dartmouth, answers with a resounding ‘no’ saying

There is no epidemiologic evidence that illness rates vary as sharply from one health care region to another as does surgery.

Do retirees in Miami prefer more aggressive care than retirees in Fort Myers? In other words, do Miami patients routinely ask for physical therapy for their back pain while Fort Myers patients typically ask for surgery?

Again ‘no’ but this time from Dr. James Weinstein, former Chairman of the Orthopedics Department at Dartmouth’s Geisel School of Medicine who has studied treatment variation for years:

It's highly improbable that Medicare retirees living in Fort Myers prefer back surgery two times as often as residents of Miami.

What causes the treatment variation? Wennberg again provides the answer:

Doctors decide who needs health care, what kind, and how much.

And the key patient benefit question: Do retirees in Fort Myers benefit from the extra back surgeries? In other words, do Miami retirees suffer unnecessarily from receiving too few back surgeries?

Though I was unable to find solid academic studies that specifically answer this question (!), Dr. Elliott Fisher and his Dartmouth colleagues addressed this issue in general in their massive 2003 study, ‘The Implications of Regional Variations in Medicare Spending’. One observation, paraphrased for readability here:

For every 10% increase in medical spending, the relative risk of death increased.

In none of the regions studied did the higher per capita expenditures lead to a statistically significant mortality decrease.

In other words more care, or care above the minimum available in any US region, led to more harm not more benefit.

Wise patients don't stop their questioning when they learn that a treatment is beneficial, as spinal surgery and mastectomy sometimes are.

Wise patients want to ensure that the treatment provides benefit to them. That takes additional questioning.

Acceptable and Unacceptable Answers to 'Is it overused?'

Acceptable answers include 'yes', 'no' and 'I don't know'. All can lead to a useful, additional discussion.

Unacceptable answers include 'we never perform unnecessary back surgery.' Fort Myers orthopedists and Miami orthopedists would say this about as frequently!

So would Connecticut and Massachusetts oncologists.

See the somewhat-famous-party-trick discussion coming up for further explanation.

Case study: C-section delivery rates at different hospitals

C-section rates vary tremendously among hospitals and regions. Some hospitals routinely deliver 40% or more of babies by c-section while others deliver 20% or less.

Similarly some states exhibit far higher average c-section rates than others.

We'll start our analysis with a 2011 New Hampshire Insurance Department study 'A commercial study of vaginal delivery and cesarean section rates at New Hampshire hospitals' that showed c-section rates varied between 15% and 47% of deliveries by New Hampshire hospital. That study concluded

There are no obvious reasons that explain why c-section rates are higher at one NH hospital than another …

there does not appear to be a relationship between c-section rates and health status among hospitals …

statistics show essentially no relationship between hospital population health and health status and c-section rates.

The NH study did not note outcome differences among hospitals suggesting similarity. (Major outcome differences would have been headline news and almost certainly included in this study.)

That raises the question: Do hospitals that perform more c-sections on similar populations generate healthier babies?

A second 2011 study addressed that, this time of 30,000 births at 10 upstate New York hospitals without specialized neo-natal intensive care units but with varying c-section rates. It found no difference in outcomes for babies born in the hospitals with the highest c-section rates and those with the lowest when outcomes are measured by Apgar scores, need for assisted ventilation, or need to move to intensive care hospitals.

Two studies, both showing different c-section rates by hospital without apparent patient health reasons or outcome differences.

Fast forward to 2013 and consider the conclusion of a Harvard School of Public Health study of 228,000 births in 49 different Massachusetts hospitals:

The same woman would have a different chance of undergoing a c-section based on the hospital she chooses …

Certain hospitals' high rates of cesarean births have more to do with characteristics of the hospitals themselves than with characteristics of their patients.

Harvard goes on to issue this caution:

While c-sections can be a lifesaving procedure for an infant in distress, or when there are multiple births or other labor complications, c-sections that are not medically necessary can put mothers and babies at avoidable risk of infection, extend hospital stays and recoveries, and increase health costs.

Again a beneficial medical intervention is overused and when 'not medically necessary' (Harvard's words) puts patients at unnecessary risk.

The same year, 2013, a different study by Dr. Katy Kozhimannil and others of 817,000 births in 593 hospitals nationally arrived at the same general conclusion. Kozhimannil found that c-section rates varied from 7 to 70 percent of all deliveries by hospital and suggested that provider practice patterns were a key driver of this rate variation.

Surgical variation rates were not, according to Kozhimannil, explained by hospital size, geographic location or teaching status…

The scale of this variation signals potential quality issues that should be quite alarming to women, clinicians, hospitals and policymakers.

More or less like the New Hampshire study, the New York study and the Harvard study.

Four different studies arrived at the same conclusion: c-sections benefit some patients but are overused so may not benefit – and may even harm – others.

To summarize:

- The hospital that you choose has a significant impact on your likelihood of delivering by c-section.
- Hospitals with the highest c-section rates don't necessarily serve the sickest, most at-risk populations.
- C-section rates vary significantly even among low risk mothers.
- Hospitals performing the highest rates of c-sections do not generate better outcomes than hospitals performing lower rates.

These treatment variation situations get replayed for dozens of procedures including

- tonsillectomies
- coronary stent insertions
- heart valve replacements
- referrals for CT scans
- hip replacements
- radical prostatectomies, and others.

Dartmouth researchers estimate that if you add all the excesses above the minimum, for lots and lots of procedures, you'll arrive at about 1/3 of all medical spending. I'd recommend that anyone interested in this topic visit the Dartmouth Atlas website and click around. It's packed with fascinating, potentially life-saving information.

A somewhat famous medical party trick story
showing that even great doctors in great hospitals practice differently

John Wennberg, more or less the godfather of treatment variation analytics in this country, performed a party trick of sorts to show how doctors practicing at highly regarded hospitals can treat similar patients differently.

He used Boston, home to Harvard Medical School affiliated teaching hospitals, and New Haven, home to Yale Medical School affiliated hospitals, as his case study.

Wennberg learned that Boston area patients spent about 40% more time in the hospital:

- A Boston patient suffering from gallstones would be 40% more likely to be hospitalized than a similar patient in New Haven.
- A patient hospitalized for surgery that required 1 night in a New Haven hospital would often have spent 2 nights in a Boston hospital.

He wondered if the New Haven docs felt they undertreated patients or if Boston docs thought they overtreated. When asked, doctors in both cities claimed to treat patients appropriately.

Which were right? They can't both be.

To answer that question, Wennberg presented his findings at New Haven and Boston medical conferences, but he accidently-on-purpose switched the data!

He showed the Boston docs that their patients spent 40% less time in the hospital and therefore received less care than New Haven patients, and vice versa, and asked for explanations.

- The Boston docs came up with lots of reasons why the New Haven ones erred by overtreating their patients, admitting too many to hospitals and therefore exposing them to unnecessary treatment risks and financial costs.
- The New Haven docs explained why the Boston ones erred by undertreating their patients, admitting too few to hospitals and therefore exposing them to unnecessary disease risks.

Wennberg then admitted his data mistake and went through the (presumably uncomfortable) analysis of the doctors' faulty reasoning.

The bottom line: though doctors all want to treat appropriately – and claim to - they are often unaware of their own assumptions and treatment patterns.

That's why wise patients always ask our questions and demand answers…

Even from the most experienced doctors who graduated from the most famous medical schools and work at the most prestigious hospitals!

Summary of Question 3
What We Have Learned So Far

Question 3 builds upon the lessons of Questions 1 and 2.

Question 1 was 'Has it been tested for the outcomes that concern me?' We learned that comparative tests identify the benefits and harms of a medical intervention.

- Importantly, we also learned that medical interventions that have not been subjected to comparative testing are ineffective or harmful about half the time. We called this Prasad's Law.

Question 2 showed how to quantify the benefit and harm impacts. We learned to ask

- Out of 100 people like me, how many benefit? And
- Out of 100 people like me, how many are harmed?

Question 3 moved us out of the laboratory and into the real world. We learned that sometimes beneficial medical interventions are overused. We learned to ask

- Is it overused?

Appropriate answers include ‘yes’, ‘no’ and ‘I don’t know’.

Inappropriate answers include ‘we never perform excessive or unnecessary treatments.’

We’ll move now to Question 4 ‘Would most physicians make the same recommendation or might some suggest something different?’ This helps you identify your treatment options.

While always important to ask, this question is particularly critical for patients who learn that the answer to Question 3 is ‘yes, we sometimes perform this procedure too often’.

Question #4
Would most physicians make the same recommendation or might some suggest something different?

How to get and evaluate a second opinion

We learned earlier that patients have care options about 85% of the time. Often two or more treatment processes generate the same patient outcomes.

But the treatment processes can involve quite different pain levels, family impacts, recovery periods, costs and other factors.

Researchers have learned that, for the 85% of care that allows for choice, wise and well informed patients may prefer treatments different from that recommended by their doctors.

And two different patients with the same medical problem can choose different treatments and both be right.

Unfortunately, since patients today often delegate decision making to doctors, physician preference rather than patient preference often determines which treatment patients ultimately receive. That’s not always such a good thing.

Preference-sensitive decision making among patients with access to good information

Various studies have assessed the impact of patient education on preference-sensitive decision making and have generally arrived at the same conclusion: when provided with good information about both outcomes and processes, patients tend to prefer less invasive and lower risk care.

The general trend is about a 20 – 25% shift.

Coincidentally, less invasive / lower risk care tends to be less expensive.

One 2012 study in Washington State found that patients who went through a thorough treatment comparison process had 26% fewer hip replacement surgeries, 38% fewer knee replacements and cost about 15% less than patients who did not go through the same process.

Other studies have indicated

- 20% fewer stent insertions
- 40% fewer prostate removal surgeries
- 40% fewer spinal fusion surgeries for herniated disks

These studies and others suggest that physicians need to diagnose both the medical condition and the patient to prescribe the appropriate intervention. A classic analysis, Patient Preferences Matter, written by two medical school professors and one business school prof, highlights the impact:

> Health care may be the only industry in which giving customers what they really want would save money.
>
> Well-informed patients consume less medicine – and not just a little bit less, but much less.
>
> When doctors accurately diagnose patient preferences, an enormous source of waste – the delivery of unwanted services – is eliminated.

In other words, when doctors assume they know which treatment process a patient wants, they substitute their own preferences for the patient's.

That's not always wise because there's a huge difference between advice giving and advice receiving. The advice recipient may or may not agree with the advice giver.

Here's a list of some potential preference-sensitive considerations that affect physician 'advice givers' differently from patient 'advice receivers'. It's not exhaustive. I didn't include 'success' since it's obviously the most important consideration of both doctors and patients.

Some physician issues and concerns	**Some patient issues and concerns**
Regulations and guidelines	Pain
Fear of lawsuit	Recovery period
Local / regional / hospital norms	Family impact
Income	Self image
Experience with treatment alternatives	Personal preference (e.g. religious)
Avoid feeling guilty	Cost

The question ‘what would you do if you were me, doc?’ is unfair. The physician-advice-giver can’t remove him or herself entirely from the constraints imposed by that role.

How to proceed after getting a second (or even third) opinion

Once you’ve had a second (or third) physician make treatment recommendations, use this chart to compare benefits and harms. Try to fill in as many boxes as possible. Include Treatments C and D as appropriate

	Treatment A	Treatment B
Benefits and harms at intervention		
Benefits and harms over the short term		
Benefits and harms over the long term		

Each patient can define benefits and harms as those most important to him or her, as well as the short and long term. Typically short term means the first few months and long term 3 – 5 years, though you can modify these definitions as you see fit.

Here are some issues in a hypothetical comparison of surgery and physical therapy for illustration purposes only. You may have different concerns.

First, benefits and harms of the intervention.

Surgery	Physical therapy
How long will I be hospitalized?	How many sessions will I need?
How much pain will I feel and for how long?	How much pain is associated with the therapy process?
How much work will I miss?	When will I know if the therapy is working?
How long will I be incapacitated?	
How likely is an infection or complication?	

Second, benefits and harms over the short term.

Surgery	Physical therapy
How long before I regain my strength and range of motion?	How often do patients report satisfaction at 3 and 12 months?
How many patients report satisfaction with the outcomes at 3 and 12 months?	How many patients quit PT and opt for surgery in the short term?
How often do patients need a second surgery?	

Third, benefits and harms over the long term

Surgery	Physical therapy
How many patients need a second surgery within 48 months?	How many patients report satisfaction with the PT outcome at 48 months?
How many patients report satisfaction with the outcome at 48 months?	How many patients who start with PT ultimately end up with surgery within 48 months?

This comparative process isn't limited to surgery and PT: you can use it to compare any medical interventions, though the specific questions in each box may differ.

Try to format your treatment comparisons this way. It will help you focus on the most critical issues and streamline your decision making process.

Feel free to show a chart like this but with your own questions to your doctor. It may facilitate your discussions.

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Case Study: How John decided on physical therapy for his torn rotator cuff

John, a 69 year old insurance broker, walked up to me in a lecture hall one day with his arms high in the air, smiling and saying 'my shoulder feels fine'.

Odd behavior and greeting in a professional setting. I hadn't seen or talked with him in the previous year or two.

His right shoulder had been so weak, he said, that he couldn't shift gears in his pick-up: he had to reach over the steering wheel with his left hand to shift.

His scans clearly showed a torn right rotator cuff and his orthopedic surgeon recommended surgery. All fairly routine.

But his story then took a surprising turn. I'll quote him:

'I probably would have said yes to surgery prior to hearing your lectures. Instead I asked your questions and decided to try PT first.

I regained 95%+ range of motion without pain in same time period as surgical recovery.

Same outcome as surgery at far lower cost, risk and hassle.'

The key questions:

Out of 100 people like me, how many benefit from, and are harmed by, rotator cuff surgery?

Would most physicians recommend rotator cuff surgery or might some suggest something different?

Interestingly John, a well-educated, knowledgeable, regular attendee at insurance seminars, wouldn't have asked those questions absent specific instruction and a script.

I suspect a similar situation exists for most patients like the Fort Myers back surgery folks and Connecticut mastectomy women we discussed earlier.

They all might have made different choices had they simply been taught to ask the right questions.

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Another patient's experience asking the 'out of 100 people like me' and the 'would most physicians agree' questions.

'Preference-sensitive' applies to physicians too!

A fellow called me with this poignant story one day, completely out of the blue. He had attended a lecture and read my book Transparency Metrics.

I have a good relationship with my cardiologist, so I felt comfortable asking your 'out of 100 people like me' questions. So I did.

He put down his pen, looked at me and said 'no one has ever asked me that. I don't know the answer. Let's figure it out' and he started typing on his computer.

The process of finding answers got me involved and I ended up feeling more comfortable with his treatment recommendations as a result. I feel like I now have an even better working relationship with him than I did before.

I'm also more inclined to comply with his recommendations.

I asked a few questions then he announced 'now I have to tell you about my next experience'.

I asked my dermatologist the same questions including 'would most physicians agree with your recommendation?'

His response: 'you come into my house and ask me those questions? If you don't trust my judgment, I think you should get another dermatologist.'

Different doctors for different patients.

Preference sensitive works for physician choice also.

Choose the doctor whose style and professional demeanor work for you.

Summary of Question 4:
What We Have Learned So Far

Question 4 builds upon the lessons of Questions 1, 2 and 3.

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- Importantly, we also learned that medical interventions that have not been subjected to comparative testing are ineffective or harmful about half the time. We called this Prasad's Law.

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Question 3 moved us out of the laboratory and into the real world. We learned that sometimes beneficial medical interventions are overused and learned to ask

- Is it overused?

The answer helps identify at least one critical reason for asking Question 4 'Would most physicians make the same recommendation or might some suggestion something different?'

There are several additional reasons for posing this question to your physician including:

- It helps you get a second opinion that differs from the first thus exposing you to a range of treatment options.
- It helps you differentiate personal preferences from medical imperatives.

Once you identify the treatment option that you prefer, you'll want to identify the physician and hospital that does it the best. Ask Question 5 'How many patients like me do you treat annually?'

Question #5:
How Many Patients Like Me Do You Treat Annually?

The more experience a specialist or hospital has treating patients with your medical condition, the better your likely outcomes

Research has identified a pretty strong (but not perfect!) correlation between the volume of similar patients treated by a specialist or hospital and the outcomes for those patients: The higher the volume, the better your chances.

This is not a perfect predictor but it's about the best predictor currently available.

One classic study on the impact of hospital volume on mortality rates was published by Dr. John Birkmeyer of the Dartmouth-Hitchcock Health System and his colleagues. They analyzed the impact of hospital volume on mortality rates for 2.5 million patients who underwent 14 different medical procedures over a 5 year period.

Patients, they concluded, can significantly reduce their operative mortality risk by choosing a high volume hospital. Though the specific mortality rate reduction varied by procedure, Birkmeyer and his colleagues identified a surgical quality gap between high and low volume hospitals.

They concluded three things about this gap:

First, it is large enough to concern patients.

Second, it is consistent across different medical specialties and research studies, and

Third, it makes sense. High volume hospitals, they reason, tend to have more consistent processes for postoperative care, better-staffed intensive care units, and greater resources for dealing with postoperative complications.

Other research pretty strongly supports Birkmeyer's conclusions:

A 2011 study of heart failure patients estimated that 20,000 lives could be saved annually if patients at low volume hospitals switched to high volume hospitals.

A study of bariatric surgery found that hospitals treating more than 100 patients annually had shorter lengths of stay, lower mortality rates and decreased costs. In particular, bariatric surgical mortality rates at low volume hospitals were up to 3x higher than at high volume hospitals for patients over 55 years old.

A 2013 study of high risk patients found those undergoing aortic valve replacement at high volume hospitals enjoyed better outcomes.

Studies of breast cancer treatment, knee surgery and other medical care finds pretty much the same things.

By contrast, studies comparing patient outcomes from newer vs. older technologies, or from academic medical centers vs. other hospitals, do not always find such a gap.

One such newer vs. older technology study found that physicians need to perform 1600 robotic assisted prostate removal surgeries to achieve excellence. Experience with the technology, often more than the technology itself, correlates with quality outcomes.

We find the same thing for surgeons – the higher their volume of a particular type of surgery, the better their outcomes. Dr. Paul Ruggieri summarized the literature on this topic in Chapter 5 of his book The Cost of Cutting:

> The message is becoming clearer with each published study. High volume surgeons operating out of high volume hospitals give patients the best chance for quality outcomes.

Based on the data, the high volume surgeon part of the equation seems to be the most important factor.

Ruggieri, a surgeon, might be slightly biased.

But Birkmeyer, the Dartmouth physician, agrees with Ruggieri's assessment, concluding that patients can improve their chances of survival substantially, even at high volume hospitals, by choosing high volume surgeons.

Thresholds

Some organizations publish 'thresholds' or recommendations for the minimum experience a surgeon or hospital needs to achieve excellence. Treating fewer than the threshold number of patients tends to increase mortality rates but treating more doesn't decrease those risks.

The Leapfroggroup, for example, has developed hospital threshold recommendations for several procedures such as

- Coronary artery bypass graft, minimum 450 procedures/year.
- Abdominal aortic aneurysm repair, minimum 50 procedures/year.
- Percutaneous coronary intervention, minimum 400 procedures/year.

Johns Hopkins, Dartmouth-Hitchcock and the University of Michigan go one step further and have developed minimum hospital and surgeon requirements for their affiliated hospitals including

- At least 20 pancreatic cancer surgeries per hospital per year, and at least 5 for each surgeon.
- At least 50 knee or hip replacements per hospital per year, and at least 25 per surgeon.
- At least 10 carotid stent insertions per hospital per year, and at least 5 per surgeon.

John Birkmeyer, the leader of the Dartmouth effort, suggests the impact. If all US hospitals adopted this standard, he says, about half the hospitals that perform many of these procedures would be prohibited from continuing to do them.

Wise patients choose specialists and hospitals working at or above the recommended threshold.

Why is experience so important?

The common sense answer that 'practice makes perfect' is only part of the reason, and the least important part. Physicians learn the process of cutting, suturing, etc. relatively quickly. Though these mechanical skills may improve slightly over time, this doesn't address the significant mortality reduction evidenced by high volume surgeons and hospitals. Few patients, it seems, die from faulty incisions.

Instead, I suggest that the true benefit of dealing with high volume surgeons and hospitals comes from their ability to identify patients who are 'out of bounds' more quickly and address their problems more appropriately. With volume a surgeon can sense, almost even without testing, that something is wrong.

Without the experience that volume brings, the surgeon is unsure if the patient's blood loss or reactions are within the normal range. This applies at a systemic level to hospitals also: nurses and technicians can develop the same sense from experience.

Atul Gawande wrote insightfully about this process in his article 'The Computer and the Hernia Factory', a study of Shouldice Hernia Hospital in Canada. Shouldice only performs hernia surgeries. Each Shouldice surgeon performs about 700 annually or, over their medical career, perhaps 20,000 similar surgeries. Gawande estimated, in 2002, that Shouldice's hernia surgery failure rate was 'an astonishing 1.0%.' He revised that figure in 2008 to 'closer to 0.1%'.

By comparison, some studies suggest an average 10-year hernia repair failure rate outside of Souldice at around 11%.

With repetition, Gawande found, 'a lot of mental functioning becomes automatic and effortless, as when you drive a car'. This allows experienced practitioners to focus on novel or abnormal situations and essentially ignore all that is normal and routine. A surgeon, he writes, for which most activities become automatic has a significant advantage.

He described a Shouldice operation:

- The surgeon performed each step ‘almost absently’
- The assistant knew ‘precisely which issues to retract’
- The nurse handed over ‘exactly the right instruments; instructions were completely unnecessary’
- The doctor slowed down only once, to check ‘meticulously’ for another hernia. He found one that ‘if it had been missed, would almost certainly have caused a recurrence’

This ‘almost absent attention to routine features’ but intense focus on potential abnormalities comes only from experience. That’s why higher volumes identify better quality surgeons and hospitals.

Just like why more experienced drivers have fewer car accidents!

When you consider hiring a specialist or using a hospital, be sure to ask the volume question. It just may save your life.

Summary

Let’s review what we’ve learned:

Patients who follow the Goldilocks principle enjoy better outcomes than patients who do not.

- Too little medical care can expose you unnecessarily to disease harms
- Too much medical care can expose you unnecessarily to treatment harms
- Inappropriate medical care can expose you to more risks, higher costs and lower satisfaction than optimal

We introduced 5 questions to ask all doctors about all medical interventions.

- Has it been tested for the outcomes that concern me?
- Out of 100 people like me, how many benefit and are harmed?
- Is it overused?
- Would most physicians make the same recommendation or might some suggest something different?
- How many patients like me do you treat annually?

You can, of course, ask plenty of your own questions too: you may have specific concerns about pain, cost, time off from work, impact on your family, etc.

But I hope you ask the questions listed here. They'll help you differentiate better from poorer care, reduce your chance of receiving unnecessary and non-beneficial care and increase your likelihood of satisfaction with your own medical care.

Review Questions

Answers on next page

1. What is a comparative study?

    a. A study that compares two very similar groups of people, one of which gets the medical intervention and the other of which does not
    b. A study that looks at only 1 group of people
    c. A study that predicts outcomes based on biological theory
    d. A study that compares the biological and physiological make up of different people

2. What is a well informed patient according to the medical definition of ‘well informed’?

    a. Understanding how well care works, what treatment options exist and which provider generates the best outcomes
    b. Understanding deductibles, insurance regulations and prices
    c. Understanding the biological processes in each treatment option
    d. Someone who reads lots of articles online

3. Which do doctors generally worry about the most?

    a. Performing too few tests and undertreating patients
    b. Having patients wait longer in their waiting rooms
    c. Providing interesting magazines for patients to read
    d. Performing too many tests and overtreating patients

4. Which is the cheapest?

    a. Good health
    b. The lowest cost knee surgeon
    c. A hospital-based MRI
    d. A free-standing MRI

5. Which strategy is generally the cheapest after factoring in all costs including patient out-of-pocket, deductibles, insurance premiums, time off of work, productivity losses and rehab expenses?

    a. Getting the best treatment outcomes
    b. Getting care from the lowest cost surgeon
    c. Paying cash for your treatment
    d. Negotiating the best deal you can with each provider

6. Why would a wise patient ask a physician if a proposed treatment has been subjected to comparative testing?

    a. Because treatments that have not been subjected to comparative testing are ineffective or harmful about half the time

b. Because it makes you sound smart to your doctor
c. Because you want to show your doctor who's really running the meeting
d. Because you want to waste time before making an important decision

7. What is Prasad's Law?

a. Medical treatments that have not been subjected to comparative testing are ineffective or harmful about half the time
b. A hospital room built is a hospital room occupied
c. The most expensive surgeon is the best
d. The most expensive hospital generates the best patient outcomes

8. Which benefits more people?

a. A treatment that prevents heart attacks 3 out of 100 people
b. A treatment that cuts the heart attack rate by 25%
c. A treatment that reduces total cholesterol levels by 10 points
d. We have insufficient information in (a), (b) and (c) above to answer the question

9. Which benefit interests a wise patient the most?

a. A reduction in heart attacks
b. A reduction in cholesterol levels
c. A reduction in blood pressure levels
d. An improvement in blood oxidation rates

10. This chapter suggests that patients who base their medical decisions on biology, physiology, anatomy and logic – but not comparative studies – are what?

a. Wrong about as often as they are right
b. Wise and thoughtful
c. Using the best possible information
d. Likely to enjoy the best outcomes

11. As the number of medical services in a community – like MRI machines, vascular surgeons or hospital beds – rises, what tends to happen?

a. More patients use those services
b. Fewer patients use those services
c. Service prices tend to fall
d. Care quality tends to decline

12. Wise patients sometimes ask if a particular treatment is overused. Which below in an inappropriate answer to that question?

a. Yes
b. No

c. I don’t know
d. I never provide unnecessary care

13. What is a ‘preference sensitive’ medical decision?

a. A decision that’s right *for you*. Different patients with the same medical condition can choose different treatments and all be right.
b. A decision that your doctor would prefer that you make, not him or her
c. Delegating your decisions to your doctor
d. Delegating your care decisions to your hospital

14. What is the general trend among patients who explore their treatment options?

a. They tend to choose less risky, less invasive and consequently less expensive care by about 25 – 30%
b. They get confused
c. They ultimately do what their doctor tells them to do
d. They cost the most

15. What is the main purpose of second opinions?

a. Expose patients to a range of treatment alternatives
b. Waste time
c. Increase physician billing opportunities
d. Confuse patients

16. Which surgeon generally generates the best patient outcomes?

a. The surgeon who does a specific type of surgery most frequently
b. The surgeon who graduated from the most prestigious medical school
c. The surgeon who charges the most
d. The surgeon who uses the newest technology

Review Questions

Correct answers in bold

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Price transparency and CDH Plans

Dr. Clifton Meador, former dean of the University of Alabama Medical School, issued this caution about the role of financing and prices in American medicine: (references available offline)

> Solutions to the high costs of medical care are almost exclusively financial or payment based [but] the underlying causes are based on misdirected clinical and diagnostic thinking

In other words, Meador cautions us about using financial tools like price lists to address clinical problems.

Dr. Andy Lazris, geriatrician and author of Curing Medicare, agrees, decrying our medical care system that

> pushes the most aggressive care, often despite a paucity of evidence to support that approach …as little as 15% of what doctors do is backed up by valid evidence

Prices can vary dramatically for the same service throughout our healthcare system. 'Transparency' means 'making prices public so people can choose the most economical alternative'. Some say this increases systemic value.

I'm not so sure.

Some pricing examples

Here are some graphic examples of price differences within a relatively small geographic region for the same services. These prices come from the New Hampshire medical price website, nhhealthcost.org, downloaded in 2013 for arthroscopic knee surgery. I chose this website because it was public and easy to use.

Facility	**Total Cost**
Concord Ambulatory Surgery Center	$3,431
Franklin Regional Hospital	$5,118
Cheshire Medical Center	$6,644
Parkland Medical Center	$7,717
Weeks Medical Center	$9,873

Pretty wide variation for the same service. Here are some prices for a pelvic MRI, same website.

Facility	**Total Cost**
Derry Imaging Center	$1,486
St Joseph Hospital	$2,574
Exeter Hospital	$2,758
Speare Memorial Hospital	$3,381
Monadnock Community Hospital	$3,868

Impressive differences. The same situation occurs for dozens of tests and treatments throughout our healthcare system.

Why prices matter (a lot)

Paying too much for a test, medication or treatment ***directly*** affects two groups of people: individuals / families with high deductible health plans and self insured companies. Both, in an economic sense, function the same way – they spend their own money on medical care. Each dollar saved drops directly to their own bottom line.

Paying too much ***indirectly*** affects us all by raising overall costs and therefore health insurance premiums.

Thus, the argument goes, considering price generates benefits for us both individually and collectively.

Why prices don't matter (much)

Prices do not tell us

- If we will benefit from the medical care
- If we will be harmed by the medical care
- If we use excellent, average or mediocre providers and treatments.

In short, shopping for medical care primarily based on price can lead patients to cheaper unnecessary or poor quality medical care. And, since it's cheaper, perhaps to *more* unnecessary or poor quality care.

How much unnecessary and poor quality care exists in the US?

The standard estimate of unnecessary care quantity in our healthcare system today is about 1/3. That comes from the Dartmouth Atlas of Healthcare and is based on the amount of geographic treatment variation identified by studying Medicare intensity levels by geographic region. Some regions routinely provide more care to residents while others routinely provide less. The Dartmouth researchers added up all the differences and concluded that the variation equaled about 1/3 of all medical spending.

With our total healthcare expenditures approaching $3 trillion annually, this '1/3' estimate accounts for about $700 billion annually and perhaps as much as $900 billion. Aetna claims the actual amount is at least $765 billion.

But I think this a low estimate, and perhaps a very low one based on two analyses that we'll discuss in some detail later in this chapter.

- First, Dr. Vinay Prasad and his team from the National Cancer Institute and National Institutes of Health, in a very rigorous, detailed study, estimated that about half of all established treatments are ineffective or harmful.[94]

  If we cut geographic 'low intensity' utilization rates by about half to account for Prasad's findings, **we might double the Dartmouth waste estimate to $1.5 trillion *or more***…potentially well over half of all medical spending.

- Second, Dr. Al Mulley and his team from Dartmouth Medical School estimated the potential systemic savings from incorporating patient preferences into treatment designs at about 20%.[95] Mulley's insight, along with others who have studied the same phenomenon, was that patients who understood their options tended to choose less medical care – both a lower number of procedures and less intense / aggressive / expensive ones.

  If we cut geographic 'low intensity' utilization rates by 20% to account for Mulley's findings, **we increase the Dartmouth waste estimate to about 40% of all medical spending.**

Add the Prasad and Mulley numbers to Dartmouth's original waste estimate and you get a very large number. I think a perfectly reasonable, even conservative estimate is 40% of all medical spending.

But I won't argue with higher estimates.

Overestimating treatment benefits

[94] Prasad, A decade of reversal, Mayo Clinic Proceedings, August 2013

[95] Mulley, Patient Preferences Matter, The King's Fund, 2012 http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/patients-preferences-matter-may-2012.pdf

Patients typically overestimate the benefits of medical care and underestimate the risks. Sometimes they think all the tests, drugs and treatments are crucial to maintaining their health. Other times they discount the risk and side effect warnings. Still other times they think the care quality is all equally good from all providers.

In general, patients seem to think that medical care is always – or, at least *almost* always - beneficial and necessary.

But patients often miss on their benefit estimates and overstate them by quite a bit. One study, for example, found that women without the BRCA genetic mutation overestimated their cancer risk reduction benefit from prophylactic bilateral (double) mastectomy 4 fold or more. [96]

- The average estimated risk reduction was 65%. Most women in the study group estimated their chance of developing breast cancer *without* surgery at 76%, and their chance of still developing breast cancer *with* the double mastectomy at 11%.
- Meanwhile, the real risk of developing breast cancer without surgery was 17%. Whatever the prophylactic mastectomy benefits, they were no greater than 17%, far less than the estimated 65% risk reduction anticipated by most patients.

Another study found that 80% of patients overestimated the benefit of hip fracture prevention medications, 90% overestimated the benefits of breast cancer screening and 94% the benefits of bowel cancer screening.

Clifton Leaf, assistant managing editor of Fortune magazine, makes pretty much the same point in his upsettingly insightful analysis of the war on cancer, The Truth in Small Doses. Most patients seem to believe that 'the newest cancer fighting drug, or at least the next one after this one, will certainly provide terrific treatment benefits, so I have to have it.'

Unfortunately, as Leaf shows in almost excruciating detail, those apparent benefits are often illusory or statistical manipulations. Take our war on breast cancer, for example, and consider all the 'newest and greatest' drugs developed since 1970, then see the impact on both our ***actual*** number of female breast cancer deaths and our national breast cancer death rate per 100,000 women: [97]

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[96] These examples come from If Patients Only Knew How Often Treatments Could Harm Them, Austin Frakt, New York Times, March 2, 2015. Frakt summarizes 30+ studies of patient expectations of medical care benefits, based largely on Patient's Expectations of the Benefits and Harms of Treatments, Screening and Tests by Hoffman and Del Mar, JAMA Internal Medicine, Feb 2015

[97] Leaf, The Truth in Small Doses, page 127. Data from the National Center for Health Statistics (CDC) and National Vital Statistics System

Year	Actual Number of Breast Cancer Deaths	Crude Breast Cancer Death Rate (deaths per 100,000 women)
1970	29,652	28.4
1975	32,158	29.4
1980	35,641	30.6
1985	40,093	32.8
1990	43,391	34.0
1995	43,844	32.2
2000	41,872	29.2
2005	41,116	27.3
2010	40,996	26.1

I did my own 'back of the envelope' analysis of breast cancer mortality gains over the past 20 or so years and found equally unimpressive improvements. I learned that from the mid-1990s to 2006 our national age of breast cancer death remained the same: 68, despite improved technologies, treatments, access and more widespread screening.

	Mid-1990s	2010 [98]
Average age of breast cancer diagnosis	62 [99]	61
Average age of breast cancer death	68 [100]	68
Number of survival years post-diagnosis	6	7

[98] 2006 data from National Cancer Inst, SEER Stat Fact Sheet: Breast downloaded Oct 2012

[99] Glockler, Cancer survival and incidence, The Oncologist, Dec 2003

[100] Saenz, Trends in Breast Cancer Mortality, Population Reference Bureau, Dec 2009

My concern: frightened patients may, under the influence of myth, ads, hope or hype, make unwise medical care choices, 'unwise' in the sense that the care probably won't benefit them much and may harm them some. But they may justify their choices based on relative prices: 'it cost $5,000 from Supplier A and only $1,000 from Supplier B. I'll give it a try. Saves me / my employer / my HSA $4,000!'

Would they have 'given it a try' for $5000?

We often think, as behavioral economists like to point out, in relative, not absolute terms. That $4,000 savings seems pretty good, a motivation to buy. That's why so many consumer products advertise '$500 off this weekend only' without telling the actual price. It's a good deal *relatively*, perhaps especially appealing to scared patient consumers.

That's why I find studies that indicate patients would opt for less, or at least very different care if they had better information about the likely benefits and harms, critically important. [101]

With these types of benefit overestimates and harm underestimates in mind, I'd like to propose a 4-Step Decision Making paradigm.[102] I suggest that patients who follow this process will make better medical decisions, end up more satisfied with their outcomes and save some money along the way.

Perhaps quite a bit of money.

How to make a wise medical decision

I suggest that wise patients use the following decision criteria when considering and accessing medical care. Price considerations are 4th on this list of 4, meaning they're relevant but that other factors are far more important.

First decide if medical care will help you**.** You can learn this from comparative studies of patient outcomes.

Care may not benefit you for a two main reasons.

- You may not be 'sick' even though some indicator or other shows you to be 'at risk'. Our sickness indicators change overtime, with some becoming more expansive and others more restrictive. Someone, for example, with blood sugar of 130 mg/dl was 'not sick' prior to 1997 but 'was sick' after, when a new threshold definition was adopted.

[101] Frakt, op cit

[102] This is the 2nd or 3rd time I discuss this in this book. My excuse: seems like a pretty worthwhile approach to medical decision making. Hope repetition serves to reinforce the message rather than bore readers.

Similarly, a 65 year old with blood pressure of 145/90 'was sick' prior to new definitions adopted in 2013, but was 'not sick' after. [103]

As a general rule, medical care cannot improve your health if you're not sick.

- You may be sick but treatments may not work. We learn from comparative studies which treatments work most of the time, which some of the time and which infrequently.

  Sometimes simply waiting for the 'sickness' to heal itself is the best strategy. This seems the case for pediatric ear aches - the NNT of antibiotics to reduce pain caused by Otitis Media in the first 7 days is 20, for example [104] - and most back pain. ChoosingWisely states that 'back-pain sufferers who had an MRI in the first month were eight times more likely to have surgery, and had a five-fold increase in medical expenses—but didn't recover faster.' [105]

  In your own case, unfortunately even if you're sick, medical care may not be able to help you.

Once you determine that medical care can help you - *if* that's what you determine and *if* you determine that it can help you *enough* - then **second**, decide which care *process* you prefer. You almost always have options: mastectomy or lumpectomy for early stage breast cancer, spinal fusion surgery or physical therapy for back pain, acupuncture or injections for a sore shoulder and many others.

- The various options sometimes (often?) generate similar outcomes though the treatment, risk and recovery processes may differ significantly.
- There's often no one 'right' answer for everyone, only 'right' answers for each individual

Once you decide which process you prefer, then, **third**, determine which medical provider gets the best outcomes.

- One spinal surgeon, for example, may generate far better patient outcomes than another so, if you've already decided you prefer spinal fusion surgery to physical therapy, choose the better surgeon. Ditto for hospitals.
- A good indicator of likely outcomes is the annual volume of patients like you that each physician and hospital treats. Though this is not foolproof – far from it, in

[103] http://www.webmd.com/hypertension-high-blood-pressure/news/20131218/new-blood-pressure-guidelines-raise-the-bar-for-taking-medications

[104] See Otitis Media evaluation on www.TheNNT.com

[105] Imaging tests for low back pain on www.ChoosingWisely.org

fact – it's about the best indicator we currently have to predict likely patient outcomes.

Finally, **fourth,** *after* you determine that medical care can benefit you, and *after* you decide which treatment process you prefer, and *after* you decide which provider gets the best results for patients like you, consider prices.

- You may find that two equally good providers charge different prices for your preferred treatment process. In that case and ***only in that case***, the wise patient chooses the low cost provider.

Be sure to follow these steps in order and rigorously. That will ensure you get the best outcomes, from the process you prefer, at the lowest cost. Don't short circuit this decision tree or you risk getting sub-optimal outcomes, from a process you really don't like, from a provider who's not very good and perhaps overpaying along the way.

Why this decision making process is so important Part 1
The story and legacy of J. Alison Glover: physicians rely on hunches too much

Dr. Glover was a British physician and researcher, perhaps the first to identify the role that physician 'hunches' had in medical care. Glover studied tonsillectomy procedure rates and impacts in the 1920s – 30s. [106] He learned that in Scotland between 1931 and 1935, 60 people died from enlarged tonsils and 513 from tonsil removal including 369 children under 15 years old.

- In this case, even though people were sick, the available medical care couldn't help them much.
- Had they applied Step 1 above, many would have opted against having tonsillectomies and, perhaps, lived as a result.
- Had they applied Step 4 only, the dismal results would have been the same, but some people would have saved money in the process, a Pyrrhic victory if ever there was one.

The US healthcare system, during the same years, was expanding its rate of tonsillectomies in children. Knowing the Scottish experience, however, the Americans tried a different approach, radiation to treat tonsillitis between the 1930s and 50s. This was both unnecessary and ubiquitous, according to the Chicago Tribune's 2004 analysis. [107] The treatments led to increases in thyroid, salivary gland and jaw cancer.

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[106] See In pursuit of the Glover phenomenon http://the-141.blogspot.com/2012/05/in-pursuit-of-glover-phenomenon-what.html and John Wennberg A debt of gratitude to J. Alison Glover http://ije.oxfordjournals.org/content/37/1/26.long

[107] Goldman, Radiation Babies, Chicago Tribune, Nov 14, 2004

- Patients rigorously using our 4-step process above would, again, have learned in Step 1 that medical care would possibly generate more harm than good.
- They may also have determined in Step 1 that they really were not sick. As such, medical treatments could not make them ‘better’. See below.
- They might also have determined, in Step 2, that tonsillectomies were less risky than radiation.

Glover hypothesized that physician preferences, rather than patient need, drove tonsillectomy rates. He tested this hypothesis by reviewing tonsillectomy rates at the Hornsey Borough School in north London, in the late 1920s.

British children in those days got their medical care through the local school with the school physician acting, more or less, like a Primary Care Physician does today in the US, while sometimes even performing surgeries like an American specialist would. As such it was the school’s responsibility to diagnose and treat tonsillitis, along with lots of other illnesses.

Glover found that in 1928, an unnamed Hornsey school physician performed 186 tonsillectomies. A new doctor named Garrow arrived in 1929 and the number of tonsillectomies fell to 12.

- The average number of tonsillectomies per year from the previous physician, 1921 – 1928: 169
- The average number of tonsillectomies per year after Garrow took over, 1929 – 1933: 13
- The percent of apparently unnecessary tonsillectomies between 1921 and 1928: about 92%.

Glover identified no outcome differences or population changes during this time. It appeared, though, that some 156 children received unnecessary tonsillectomies annually from the previous doctor. They were not, in our terms, ‘sick’.

- Again, to tie this back to our price transparency discussion, wise Hornsey parents would have determined whether or not tonsillectomies provided benefit first and then considered price (if that was a factor in 1929 Britain. I’m not sure it was.)
- Unwise parents would have assumed something about the procedure benefits then jumped to our Step 4 and compared prices from available providers.

OK, one might say. The Hornsey situation happened a long time ago, in a country far away. It doesn’t apply to American medicine today.

John Wennberg follows in Glover’s footsteps

Wennberg, then a young researcher at Dartmouth Medical School, built on Glover's ideas and tracked tonsillectomy rates in Vermont in the 1970s. He found exactly the same thing as Glover did in Hornsey:

- 7% of children under age 16 had tonsillectomies in Middlebury Vermont, while
- 70% did in Morrisville, despite these two communities being demographically similar.

Wennberg identified a similar treatment variation rate when comparing Waterbury Vermont to next door Stowe, again two socio-economically and demographically similar towns (among the full time residents though not necessarily the ski vacationers who didn't generally have tonsillectomies there anyhow).

Parents choosing the cheapest tonsillectomy provider in Morrisville or Stowe would have received less expensive though still unnecessary care about 80% of the time. Not a vast improvement over the 92% unnecessary rate discovered by Glover in Hornsey, years before.

'Too long ago' you still might say. 'My doctor uses the most up-to-date technology, so this wouldn't happen to me. Those Vermont studies are 50 years old.'

In 2013, Wennberg, now an elderly senior researcher and his colleagues at Dartmouth published a tonsillectomy rate analysis among kids in Northern New England during the period 2007 – 2010. Here's what they found in each Pediatric Surgery Area, per 1000 children:

Rates per 1000 children by Pediatric Surgery Area		Surveys of New Hampshire, Vermont and Maine by Dartmouth affiliated researchers	
Middlebury, Vt	**5.6**	Burlington, Vt	**2.9**
Berlin, NH	**10.4**	Lewiston, Maine	5**.2**
York, Maine	**7.3**	Portland, Maine	**4.0**
Presque Isle, Maine	**5.8**	Bangor, Maine	**2.7**
Dover, NH	**8.1**	Waterville, Maine	**3.6**
Manchester, NH	**8.1**	Ellsworth, Maine	**3.8**
Exeter, NH	**8.4**		

The average rate in Burlington Vermont and Bangor Maine was about 3 tonsillectomies per 1000 children while the average rate throughout New Hampshire was about 9, a 3-fold rate difference. The unnecessary tonsillectomy rate in New Hampshire between 2007 and 2010: about 68%, better than Glover's Hornsey example 80 years before but still awfully high.

The Dartmouth researchers could not identify population health differences that explained this treatment rate difference, just as Glover had been unable to in Hornsey. Nor could they identify population health gains from the excessive tonsillectomies.

Throughout this story, the treatment rate differences appear due to physician preferences, not patient need.

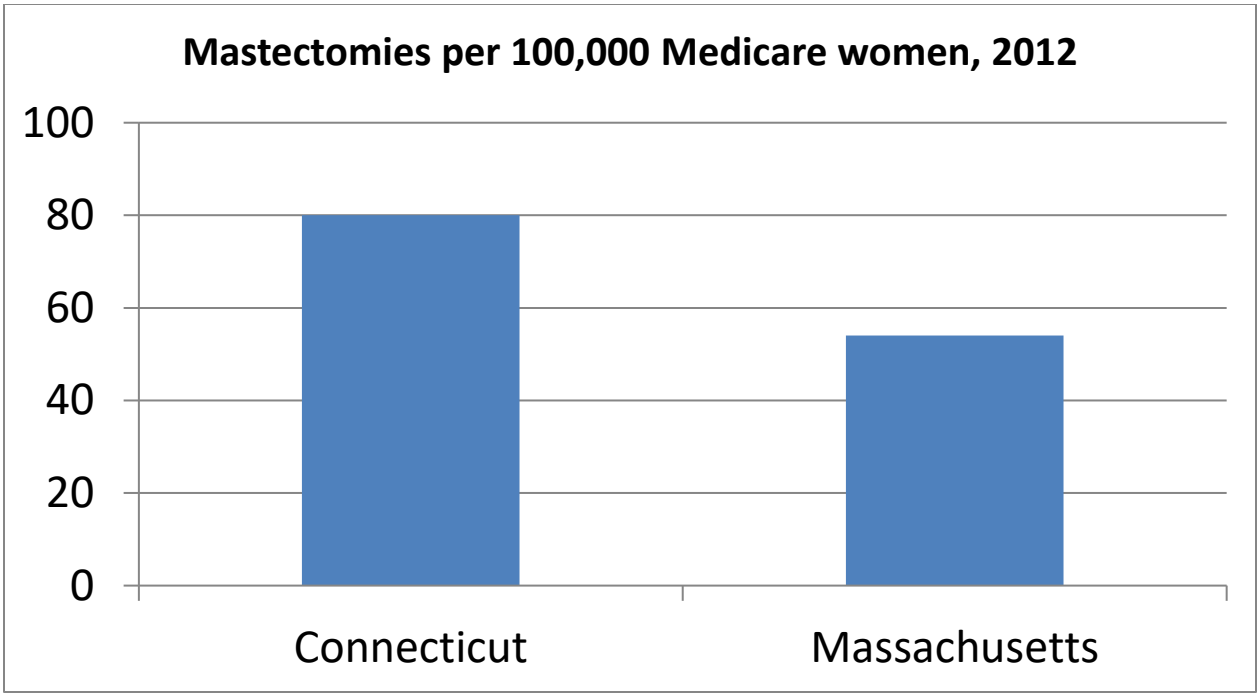
- The appropriate mechanism to avoid unnecessary care remains consumer education and use of our 4-Step Program, not price lists and not google searches.
- Parents choosing the cheapest tonsillectomy providers in New Hampshire would have received less expensive unnecessary care for their children 2/3 of the time…just like the parents in Stowe or Morrisville 50 years earlier or Hornsey 80 years before. Not much systemic evolution over the years.

Physicians appear, according to Wennberg, to rely on ‘hunches’ too often, rather than data and scientific outcome evidence from comparative studies when making treatment recommendations to patients, just as they did in Hornsey and Morrisville many years before.

But perhaps the most shocking treatment variation example comes in the mastectomy rate differences among Massachusetts and Connecticut Medicare beneficiaries. Note that both Massachusetts and Connecticut patients have access to outstanding medical care in facilities affiliated with Harvard and Yale medical schools respectively. It just doesn’t get any better than that!

I say ‘most shocking’ because in this breast cancer treatment case we have disease incidence rates, disease treatment rates and patient outcome rates. This puts to bed the ‘population difference’ justification for treatment variation rates.

Here’s a chart showing mastectomy rates in both Massachusetts and Connecticut, per 100,000 Medicare beneficiaries, from the Dartmouth Atlas of Healthcare, 2012.



Connecticut women are about 50% more likely to have mastectomies than Massachusetts women.

This raises the 'sickness' question: are Connecticut women sicker than Massachusetts women? Do they get breast cancer 50% more frequently?

The answer is no, according to breast cancer incidence rate data from the American Cancer Society. [108] The breast cancer rates are virtually identical.

Breast cancer incidence rates per 100,000 women

	Non Hispanic White	African American	Hispanic
Connecticut	139	113	127
Massachusetts	137	109	104

Now, if women in both states were equally sick but received different treatments, did Connecticut women benefit from the additional mastectomies?

Again the answer is no. Breast cancer mortality rates are almost identical in both states. [109]

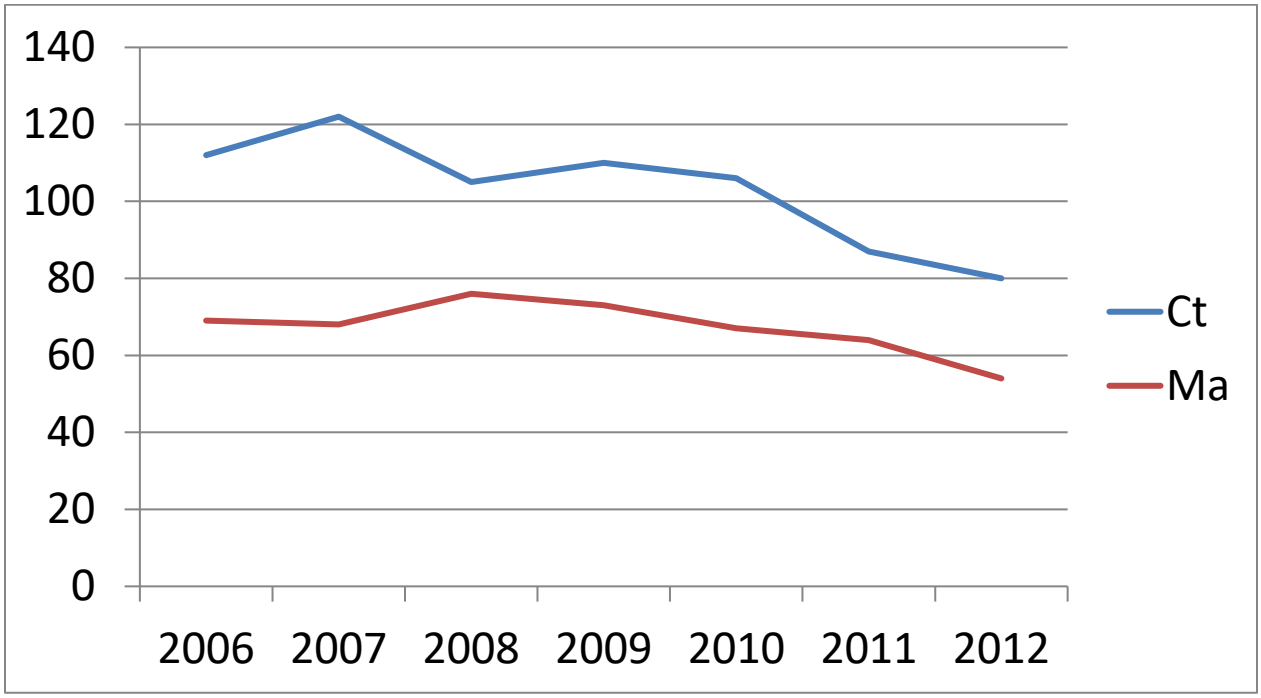
[108] American Cancer Society, Cancer Facts and Figures, 2011-2012

[109] http://www.cancer.org/acs/groups/content/@epidemiologysurveilance/documents/document/acspc-030975.pdf

Breast cancer mortality rates per 100,000 women

	Non-Hispanic White	African American	Hispanic
Connecticut	24.0	27.4	12.1
Massachusetts	23.5	27.3	12.1

This treatment variation situation has existed for years. Connecticut always has more, per thousand women. Here are the rates from 2005 – 2012, again using data from the Dartmouth Atlas:



That 50% more in Connecticut rate has existed for many years.

If the additional mastectomies Connecticut women received over time had any benefit, then we would see breast cancer mortality rate differences that approximate the treatment differences. That is not the case.

Rate discrepancies like these exist for dozens of medical tests and treatments.

These situations – tonsillectomy rates in Vermont in the 1970s and northern New England from 2007 – 2010, and mastectomy rates in Massachusetts and Connecticut in the 2000s – are exactly the same as Glover identified in Hornsey in the late 1920s.

- Knowing treatment prices would no more help a Connecticut women in 2010 avoid an unnecessary mastectomy – or a Scot in the 1920s avoid dying from a

botched procedure or an American in the 1940s avoid radiation-induced thyroid cancer - than a Hornsey child in 1928 avoid an unnecessary tonsillectomy.

- Most likely, price transparency would only have helped that Hornsey child or Connecticut women get cheaper unnecessary care.

An underlying cause of this problem, according to many who have studied it: physicians like to use the newest available technology [110] and patients generally believe that more medical care is better medical care. Wennberg put it this way: [111]

- Few surgeons are hesitant believers in the efficacy of the operations they perform, nor do they doubt their clinical necessity.
- Most patients are convinced that the benefits of surgery exceed the risks by a wide margin.

Yet, as we have just seen, these two certainties do not add up to patient benefit as often as either doctors or patients would like. Knowing prices adds nothing to the patient's chance of benefit.

Why this decision making process is so important Part 2
The impact of Vinay Prasad's research: half of established medical interventions are found to be useless or harmful when subjected to comparative studies

Dr. Prasad, Senior Fellow at the National Cancer Institute and National Institutes of Health, was lead author in an extraordinary, though little discussed, study published in the Mayo Clinic Proceedings in 2013, *A Decade of Reversal*. [112] Prasad and his team reviewed every article published in the New England Journal of Medicine between 2001 and 2010 and found that 363 studied an 'established' medical practice, meaning a commonly used medical protocol.

Of those, 146 studies or 40% reversed the practice.

In other words, 40% of comparative studies on existing, established, routine medical practices showed those practices were ineffective or harmful. The actual percentage is probably closer to 50% being ineffective or harmful when Prasad's 'inconclusive' group, 139 practices or 22% is included.

Stated differently, about half of what doctors do doesn't work. As Prasad told the New York Times

[110] See Dr. Lazris's comment at the beginning of this chapter.

[111] http://ije.oxfordjournals.org/content/37/1/26.long

[112] http://www.mayoclinicproceedings.org/article/S0025-6196%2813%2900405-9/abstract

> They all sound good if you talk about the mechanisms… the nuts and bolts, what does it do, how does it work….but the real question is: Does it work? [113]

Or, as he said in his fascinating You Tube summary: [114]

> Of all those things we're doing currently that lack good evidence, probably about half of them are incorrect.
>
> Patients who are embarking on procedures, screening tests, diagnostic tests should really try to ascertain whether or not those are based on good evidence. By good evidence, I mean randomized controlled trials powered for hard endpoints such as mortality or morbidity and not surrogate endpoints.
>
> Consequences of medical reversal are quite dire. All the people who were subject to the intervention during the years it fell in favor… in retrospect, we realize, received no benefits
>
> These are practices that should never have been instituted, that were instituted in error…even for things that make perfect sense.
>
> The take away message from our paper is that a large proportion of medical practices which are based on little to no evidence are probably incorrect. Their continued use jeopardizes patient health and wastes limited healthcare resources.

Remember Prasad's definition of *evidence*: randomized controlled studies powered for hard endpoints, not biological, anatomical or physiological explanations of why some intervention makes sense. Wise patients discuss outcome evidence with their doctors; unwise discuss anatomy and physiology. Prasad clearly explains why the latter approach doesn't work.

Here are some of Prasad's examples of medical reversals. You can find the entire list on the Mayo Clinic Proceeding website. As you review this list, ask yourself if you would like to have the *cheapest* of the reversed procedure or test. My guess: you don't want it at all, regardless the price.

I tried to choose relatively non-technical discussions. Many of Prasad's 146 reversals are very technical, specialized interventions and his discussions are often aimed at a medically trained audience.

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[113] http://well.blogs.nytimes.com/2013/07/26/medical-procedures-may-be-useless-or-worse/

[114] https://www.youtube.com/watch?v=fB1qEoDO2nE

Intensive Blood Glucose Control and Vascular Outcomes in Patient with Type 2 Diabetes	A target A1C of 7.0% or less was the guideline for most patients with diabetes. However data were inconsistent how glucose control played a role in vascular disease. In the Action in Diabetes and Vascular Disease (ADVANCE) trial, the effects of glucose control on major vascular outcomes were evaluated. There was no evidence of reduction in macrovascular events and intensive glucose control was associated with increased risk of severe hypoglycemia and increased rate of hospitalization.
A Randomized Trial of Arthroscopic Surgery for Osteoarthritis of the Knee	Arthroscopic surgery is widely used for osteoarthritis of the knee even in the face of scant evidence of its efficacy. This failed to show a benefit of arthroscopic surgery for treatment of osteoarthritis of the knee as assessed by WOMAC scores
Effects of Combination Lipid Therapy in Type 2 Diabetes Mellitus	Fibrate therapy has long been used in the treatment of dyslipidemia in type II diabetes. Though statins are considered primary therapy to reduce the risk of cardiovascular events, rates remain elevated despite use. Two large previous studies of fibrate therapy in type II diabetics conflicted with regard to their effect on cardiovascular events. The Action to Control Cardiovascular Risk in Diabetes (ACCORD) Lipid study demonstrated here that statin and fibrate combination therapy did not differ in outcomes compared with statin therapy alone at similar levels of serum lipids.
Two Controlled Trials of Antibiotic Treatment in Patients with Persistent Symptoms and a History of Lyme Disease	Many patients with persistent symptoms of Lyme disease receive prolonged courses of antibiotics, although the effectiveness of this practice remains unknown. This randomized, placebo-controlled, double-blinded trial failed to show any significant improvement in

	symptoms after a prolonged 90- day course of antibiotics in patients with persistent symptoms.
Calcium plus Vitamin D Supplementation and the Risk of Fractures	Observational evidence and data from randomized clinical trials suggested that calcium or vitamin D supplements or both may slow bone loss and reduce the risk of falls. However, in this randomized clinical trial involving 36,000 postmenopausal women, calcium with vitamin D supplementation did not significantly reduce hip fracture, and increased the risk of kidney stones

Consider our mastectomy data from Connecticut and Massachusetts above. Rates are down in both states, more dramatically in Connecticut, even though Medicare enrollment is up. Does this mean 20 or 30% of the Connecticut mastectomies performed in 2006 – 2010 (and earlier – I didn't include those data to keep the above chart easy-to-read) were performed in error (Prasad's term)?

That's in addition to the rate discrepancy between Connecticut and Massachusetts.

Why this decision making process is so important Part 3
Al Mulley and the problem of patient preference misdiagnosis: well informed patients often prefer treatments that differ from what their doctor thought they would want

Dr. Albert Mulley and his team from Dartmouth's Geisel School of Medicine evaluated the phenomenon and impact of physician attempts to diagnoses patient treatment preferences. [115] Patients who learn of all their treatment options, it turns out, often choose very differently from their physicians, or indeed, from what their physicians would expect them to choose.

Mulley summarizes his conclusion this way:

> Well-informed patients consume less medicine – and not just a little bit less, but much less. When doctors accurately diagnose patient preferences, an enormous source of waste – the delivery of unwanted services – is eliminated. It is particularly notable that when doctors accurately diagnose the preferences of patients struggling with long-term conditions, those patients are far more likely to

[115] http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/patients-preferences-matter-may-2012.pdf . See especially page 9, source of quote in the next paragraph

keep their conditions under control, leading to fewer hospitalizations and emergency department visits.

But rushed doctors treat as *they think* the patient wants. This 'silent misdiagnosis' harms both patients and the system:

- It harms patients by providing care to them that they would not have chosen had they been better informed. Patients, according to Mulley, can suffer just as much from a missed *preference* diagnosis as from a missed *medical* one.
- It harms the entire system when doctors select more aggressive, invasive and expensive treatments than the patients themselves would, thus increasing overall costs. 'Patients choose fewer treatments when fully informed' according to Mulley, a conclusion reached in other studies. [116]

  This echoes Wennberg's suggestion above about specialist enthusiasm for surgery and Lazris's about the system promoting the more aggressive care far too often.

Mulley estimated the overall system savings from better patient preference diagnoses at 15 – 20%, but this comes with a huge caveat. He and his team evaluated the impact of improved patient preference diagnosis in the Britain's National Health Service. The UK averages spending less than half per capita on healthcare as we do, about $3,400 per person compared to over $9,000 per American. The potential savings for our healthcare system is enormous, possibly well over that 20% estimate.

Dr. Sandeep Jauhar, cardiologist and author of 'Doctored' agrees with Mulley's thesis, suggesting that healthcare reforms

> will have to focus less on payment models and more on education…better-informed patients might be the most potent restraint on overutilization …Shared decision making would be more likely to get patients the treatments they want [while helping them avoid unnecessary or inappropriate care]

Adding to this whole line of thinking, Atul Gawande, one of the key thought-leaders in this field, suggests a new role for doctors that builds on Glover, Wennberg, Prasad, Mulley and Jauhar's thinking:

> **the ideal modern doctor should be neither paternalistic nor informative but rather interpretive, helping patients determine their priorities and achieve them** [117]

[116] See the Dartmouth Atlas of Healthcare, sections on Preference-Sensitive Care and Reflections on Variation

[117] Sheri Fink, New York Times Book Review of Gawande's Being Mortal, November 6, 2014

I think this is a brilliant summary of the doctor's role. But it takes time to 'help patients determine their priorities and achieve them'; it's not a role one can play in a time compressed environment.

What this means for price transparency

Step 1 of our 4 step 'how to make a wise medical care decision' really matters. This step, in case you forgot, is 'determine that medical care can benefit you'.

That, I think, is where our medical care system should point patients first. Prices are where our medical care system should point patients last.

Dr. Andy Lazris summarizes the problem nicely:

> an idea has blossomed within our medical thinking that equates aggressive, specialized care with good care … with enough perseverance, our healthcare delivery system is capable of virtually anything…the perception that science and technology can cure everything …[but] as little as 15% of what doctors do is backed up by valid evidence … [instead] technology is king
>
> the public – from patients and their families to doctors and experts and politicians and journalists – perceive that more is better [118]

Knowing prices does nothing to fix this problem.

When I think of the various healthcare problems we face, and of price transparency as the solution, I am reminded of a quote I heard at a convention some years ago – sorry, can't remember exactly where or when – about healthcare: Never have so many bright and talented people worked so incredibly hard to achieve so little.

That quote and the energetic price transparency movement also remind me of Ronald Reagan's famous campaign response to a tried-and-failed political initiative of an opponent: *There you go again*.

In healthcare *'there you go again'* means yet another attempt to solve clinical problems with financial tools. It never works. Dr. Meador told us that in the beginning of this chapter.

The problems raised by attempting to solve clinical problems with financial tools

Our healthcare financing tools, commonly called 'health insurance', focus almost exclusively on 'financing' and almost totally disregard 'health'. David Dranove of Northwestern University summarized the impact of this fallacy in his book The

[118] Lazris, Curing Medicare, page xviii

Economic Evolution of Managed Care on cost control reforms in the 1980s and 90s: they 'utterly failed, on all accounts'.

Though there are many reasons for this, I think the two fundamental are:

- A primary financial focus almost inevitably reduces the ***amount of time*** each physician has for each patient. Time is the physician's primary inventory, one which he or she must use wisely to maximize his or her income. As the payment for each inventory unit – i.e. each minute – decreases, physicians need to maximize their income per unit. Hence, they see more patients per hour or day.

  Michael Porter, Harvard Business School's great business strategy professor, put this succinctly in his 2006 book Redefining Healthcare: Without the discipline of value-based competition on results, carriers have incentive to reduce the time physicians spend with patients. [119]

  Price lists and price transparency programs take us exactly where Porter warned we don't want to go. We need to focus on outcomes, not prices, to improve outcomes. We cannot improve value (outcomes per dollar spent) otherwise and we'll probably end up decreasing it.

- Financial / price based solutions lead to 'simplistic actions such as across-the-board cuts in expensive services, staff compensation, and head count' according to Porter. [120] More succinctly, he says,

  'It is a well-known management axiom that what is not measured cannot be managed or improved' [121] meaning financial solutions to clinical problems may lead to cuts that negatively impact care quality. Rather than managing some critical but unquantifiable care components, market pressures may lead to across the board cuts.

  That was, more or less, our experience with HMOs in the late 1990s and early 2000s: fairly brutal cuts and cost controls that led, among other things, to the Patient's Bill of Rights. Might we simply re-create the same experience, only this time motivated by price lists?

I'll let some physicians express all this in their own words.

Dr. Vikas Siani, President of the Lown Institute, suggests that publishing prices lists will put more pressure on clinicians to improve their efficiency. This will limit the amount of

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[119] I wrote this quote in my notes while reading Porter and Teisberg's Redefining Healthcare, but can't find the exact reference. This article in the Harvard Business Review says pretty much the same thing. https://hbr.org/2011/09/how-to-solve-the-cost-crisis-in-health-care

[120] Ibid

[121] https://hbr.org/2011/09/how-to-solve-the-cost-crisis-in-health-care

time for each patient's care and serve to erode, not enhance, the doctor-patient relationship.[122]

Dr. Joshua Fenton of UC Davis Medical School, lead author of a study that concluded ''Patient satisfaction is linked to higher healthcare expenses and mortality, study of 50,000 people over 7 years' claims [123]

> Doctors may order requested tests or treatments to satisfy patients rather than out of medical necessity, which may expose patients to risks without benefits. A better approach is to explain carefully why a test or treatment isn't needed, but that takes time, which is in short supply…

…and which may decrease in supply under the increased billing pressures that result from excessive price considerations.

Publishing prices absent the critical and, as yet poorly developed quality metrics may make this situation worse, not better. The net result may be *more* unnecessary tests and treatments, not fewer according to Dr. Jauhar who says

> There is no more wasteful entity in medicine than a rushed doctor.[124]

To save time, he says, doctors order more tests or refer to more specialists. This adds costs and risks; it doesn't decrease them.

Time compressed physicians have less time to develop personal relationships with each patient. This leads, according to a study of 20,000 diabetics and their care givers, to less empathy for patients and poorer outcomes. [125]

- Patients of high empathy doctors had about 35% fewer metabolic complications like hyperglycemia or diabetic comas.
- Empathy means sharing feelings with other people, not belittling, undermining or judging, according to Dr. Rana Awdish, a critical care physician at Henry Ford Hospital who's involved in hospital's empathy program. These skills can be taught and practiced, she says, but this requires emotional availability on part of physician, something he or she needs time with patients to develop.

[122] http://www.doconomics.com/blog/?p=4647

[123] http://www.ucdmc.ucdavis.edu/publish/news/newsroom/6223

[124] Jauhar, New York Times, 7/20/14

[125] Bakalar, NY Times, Doctor Empathy a Factor in Diabetes Care

- Dr. Jauhar addresses the empathy issue from a typical physician's point of view: 'Among my colleagues I see an emotional emptiness created by the relentless consideration of money.' [126]

Kaplan and Haas, in their 2014 Harvard Business Review article 'How Not to Cut Health Costs' give an example:

- Starting kidney dialysis with a fistula (a surgical procedure to connect to an artery or vein) rather than catheter generates better outcomes, meaning longer lives with fewer complications.
- Patients starting at optimal times in their disease progression cost tens of thousands of dollars less per year than otherwise.
- One nephrologist said that spending 30 minutes more per patient with advanced kidney disease could dramatically improve rate of fistula or graft starts, *but there was no time or compensation for the discussion*.
- Publishing nephrology office price lists will, suggest these authors, take us in the wrong direction, generate more patient harm and ultimately cost our system more.

Actions like helping patients choose doctors based on price destroys healthcare system value.

But actions that (1) increase the amount of time physicians have with patients and that (2) enhance the doctor-patient relationship, that (3) help doctors diagnose preferences better and that (4) help patients choose effective care based on their preference and high quality outcome studies, add value.

How to turn price transparency from value-destroying to value-creating

Our definition of value includes two components: costs and outcomes, value being measured as outcomes per dollar spent. Focusing only on spending will probably decrease systemic value by reducing outcomes, for all the reasons above.

Including critical outcome factors along with prices can turn this positive, into a value creating exercise. I'll list some components below as examples. The chapter on Decision Aids goes into this in much more detail.

Consider first **birthing**, about 10% of non-Medicare hospital income. Along with price lists by hospital, an informed patient would need to know

- Infant mortality rates by hospital

[126] Jauhar, Doctored, page 170

- Infant and maternal readmission rates
- C-section rates
- Plus have some indication of whether or not each hospital's catchment area population was abnormal in some critical respect.

For **preventive care**, a wise patient would need to know

- Mortality and morbidity rates both with and without the preventive care
- Harm rates from the preventive care such as false positives and test and treatment harms
- Plus have an ability to understand what all these numbers and statistics really mean.

For **hospital choice**, patients need to know

- Infection rates
- 30 and 60 day readmission rates
- Tendency / process information by hospital per 1000 people in each hospital's catchment area, similar to Dartmouth Atlas information
- Volume of similar patients treated annually. Though an imprecise metric, care quality correlates relatively well with care quantity, and the hospitals performing the highest number of similar surgeries annually tend to generate the best patient outcomes.

For **surgeon choice**, patients need to understand

- Infection rates, complication rates, mortality rates, return-to-operating room rates and hospital readmission rates by surgeon / by procedure
- It does not seem fair that hospitals should be privy to this important information while prospective patients, whose health could be influenced by it are not, says Dr. Paul Ruggieri, general surgeon and former clinical instructor at Harvard Medical School. [127]
- Absent that information, patients need volume rates by surgeon. 'Patients can improve their chances of survival substantially – even at hospitals with high volumes of a procedure - by selecting surgeons who perform the operations frequently,' according to Dr. John Birkmeyer, former Chief of General Surgery at Dartmouth – Hitchcock Medical Center in New Hampshire.

[127] Ruggieri, The Cost of Cutting, page 127

For **pharmaceuticals**, note that the Americans average about 13 prescriptions / capita / year, double other OECD countries that generate similar or better population statistics.

- Several new Decision Aid reference sources provide useful drug information though in different forms. I particularly like Number Needed to Treat and Harm analyses. I'll discuss much more of this in the chapter on Decision Aids

Patients who know this quality information can use their doctors as 'interpreters' (Gawande's term) to help them determine which care they really want and which process they prefer. Prices can have a role in those discussions but, I suggest, probably a relatively limited one.

Conclusion

Good health is cheaper than poor health. That's both axiomatic and true.

Activities that get patients healthier are almost always less expensive than activities that either keep people unhealthier or do not positively impact health.

Well informed patients who understand their options tend to cost less than poorly informed patients. Well informed patients who use our 4-Step Decision Process will chose care wisely by balancing the likely benefits against the likely harms. They will use outcome data from comparative studies to help them make their decisions, consult with their physicians about options and alternatives and ultimately end up healthier.

Poorly informed patients assume that more medical care is better medical care, tend to assume higher likelihoods of benefit and lower of risk than are true, and are ultimately somewhat less likely to end up in good health.

Turning patients from poorly informed to well informed saves money. Shopping by price, especially for medical interventions that do not benefit patients, does not.

I conclude that Price Transparency is value-creation neutral:

- Listing prices alone, absent the critical quality indicators discussed above and in detail elsewhere in this book, probably destroys value.
- But listing prices *along with* those critical quality metrics, and using prices to engage patients in a discussion of care quality can increase system value.

It's too early in this process to know where this is headed and to issue a definitive conclusion.

[1] Richard Harris, Rigo Mortis and John Wennberg, Tracking Medicine for example.

[1] See the Dartmouth Atlas of Healthcare for example on this.

[1] State of Washington 2018 report First Do No Harm. I used this source for the other examples in this section also.

[1] Wennberg, Tracking Medicine. He estimates that patients have options about 85% of the time.

[1] See the Dartmouth Atlas of Healthcare and various research papers from the Dartmouth Institute for Health Policy and Clinical Practice, for example. Also David Cutler's estimate in The Quality Cure, page 20.

[1] See Wennberg, Tracking Medicine, Chapter 1

[1] HHS, Quick Guide to Health Literacy, https://health.gov/communication/literacy/quickguide/factsbasic.htm

[1] Mulley, et al, Patient Preferences Matter, Kings Fund and the Dartmouth Center for Health Care Delivery Science, 2012, page 9

Review Questions

Answers on next page

1. Do prices among vendors vary much for the same medical service?

    a. Yes
    b. No
    c. Only in New Hampshire
    d. Rarely in New Hampshire

2. Can you determine which vendor provides the highest quality medical services from price lists?

    a. Yes
    b. No
    c. Only in New Hampshire
    d. Rarely in New Hampshire

3. Can a patient determine if he or she will benefit from a specific medical service by learning its price?

    a. Yes
    b. No
    c. Only in New Hampshire
    d. Rarely in New Hampshire

4. About how much ineffective or harmful medical care exists in this country?

    a. About 2% of medical care is ineffective or wasteful
    b. About 40 – 50% of medical care is ineffective or wasteful
    c. About 97.8% of medical care is ineffective or wasteful
    d. Well over 100% of medical care is ineffective or wasteful

5. This text suggested 3 reasons that explain why medical care is sometimes ineffective or wasteful. Which below is NOT one of those reasons?

    a. Physicians rely on hunches, not science, too often
    b. Medical care that has not been subjected to comparative studies is proven ineffective or harmful about half the time when subjected to those studies
    c. Physicians too frequently treat patients according to physician preference, not patient preferences
    d. Doctors are poorly trained in this country

6. This text suggested a Four Step Process for making wise medical care decisions. Which below is Step 1 of that process?

    a. Determine if medical care provides more benefits than harms or than doing nothing

b. Pray
c. Ask a trusted friend or relative what to do
d. Learn as much as you possibly can about the anatomical and physiological causes of your medical problem

7. Which below is NOT an element of the Four Step Process?

a. Determine which treatment process you prefer
b. Determine which doctor and hospital generates the best outcomes for your preferred process
c. If two providers generate the same outcomes from your preferred process, consider prices
d. Pray

8. Which, below, is *most likely* to happen if medical prices become widely known to patients?

a. Doctors will spend less time with each patient
b. Our national 30 day hospital readmission rate will drop
c. Our infant mortality rate will drop
d. Americans will live longer

9. Which, below, is *least likely* to happen if medical prices become widely known to patients?

a. Care quality will improve
b. Prices for many ineffective treatments will fall
c. Doctors will advertise the prices of their (often ineffective or harmful) services
d. Hospitals will advertise the prices of their (often ineffective or harmful) services

10. Americans seem to perceive that more medical care is better and that higher technology care is better than lower. How will posting prices affect these perceptions?

a. It won't
b. It may reduce moral hazard when people understand what care costs
c. It may induce more moral hazard when people learn true care costs
d. It may incent people to drop insurance coverage

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Correct answers in bold

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8. Which, below, is *most likely* to happen if medical prices become widely known to patients?

a. Doctors will spend less time with each patient
b. Our national 30 day hospital readmission rate will drop
c. Our infant mortality rate will drop
d. Americans will live longer

9. Which, below, is *least likely* to happen if medical prices become widely known to patients?

a. Care quality will improve
b. Prices for many ineffective treatments will fall
c. Doctors will advertise the prices of their (often ineffective or harmful) services
d. Hospitals will advertise the prices of their (often ineffective or harmful) services

10. Americans seem to perceive that more medical care is better and that higher technology care is better than lower. How will posting prices affect these perceptions?

a. It won't
b. It may reduce moral hazard when people understand what care costs
c. It may induce more moral hazard when people learn true care costs
d. It may incent people to drop insurance coverage