Note about the phrasing of these and the other questions in our checklist. The wording matters, just as the process that Peter Pronovost introduced at Johns Hopkins Hospital mattered.

- Pronovost didn't say 'use sterile equipment'. He said 'wear sterile mask, hat, gown and gloves.' That's potentially quite different.
- Patients should ask the questions exactly as phrased here. Other formats and wording, like 'is this a good treatment?' or 'would you have this treatment yourself?' can generate quite different answers and lead in quite different directions.

Question 3: Would most doctors make the same treatment recommendation or might some doctors recommend something different?

This is the second opinion question and again, wording matters. We want to help patients develop good working relationships with their doctors, not destroy them; we strongly and actively support strengthening the doctor-patient relationship.

This question doesn't question your doctor's competence but it recognizes that different doctors can approach the same medical problem quite differently.

It also recognizes that physicians within the same practice, hospital or region tend to treat similar patients similarly.

Asking 'can I have a second opinion?' can easily generate a referral to the specialist down the hall, who agrees with your doctor's first opinion all the time. But asking for an opinion from a doctor who is likely to disagree with your initial opinion can expose you to a much richer range of options and may have a huge impact on your ultimate medical decision.

Studies show that second opinions can alter the patient's treatment decision up to about 1/3 of the time.

The ethical broker understands this and teaches patients the right / best way to ask.

Question 4: How many patients like me do you treat annually?

Extensive research shows that the best predictor of likely medical outcomes from surgery is the number of patients treated annually by the surgeon. [70] In fact, physician experience trumps every other indicator of likely patient outcomes including

- Technology
- Medical school affiliation and
- Hospital reputation

Research shows the same relationship for hospitals: the more knee replacements performed annually in a specific hospital, the better the outcomes for knee replacement patients at that hospital.

Experience is not, however, a perfect predictor. Sometimes a high volume surgeon may still get a poor patient outcome and sometimes a low volume surgeon may generate an excellent outcome for a specific patient. But on average, most of the time and in general, the higher the volume of patients like you that a hospital or surgeon treats annually, the better the outcomes for those patients.

One caveat to note: researchers have identified some threshold numbers for surgical procedures. These act as indicators of likely quality. The Leapfroggroup, for example, suggests that hospitals achieve optimal results at 500 coronary artery bypass graft procedures annually.

- Hospitals performing fewer than 500 CABG annually generate poorer patient outcomes
- Hospitals performing 700 or 1000 annually do not generate results better than hospitals performing 500
- 500 is the threshold for optimal outcomes from this procedure.

Leapfrog publishes hospital thresholds for other procedures, including abdominal aortic aneurysm repair (30 annually) and carotid endarterectomies (100 annually) among others.[71]

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[70] See for example, Paul Ruggieri's book **The Cost of Cutting** which summarizes many studies and John Birkmeyer, former director of clinical services at Dartmouth Hitchcock Medical Center, **High Volume Surgeon, Better Chance of Patient Survival** and **Surgeon Volume and Operative Mortality in the United States.** Many similar studies exist.

[71] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1360105/

Question 5: How much does it cost?

This is the standard price question that a wise consumer would ask about any product or service. Price is especially important for people with high deductible plans and certain kinds of other policies, including reference based plans and some types of self insured policies.

But be sure to ask the pricing question only after you have asked the first 4 questions. Otherwise you risk getting ineffective or poor quality inexpensive care, while more effective and higher quality care might cost just a little more.

Summary of this ethical application

Ethical brokers would introduce a simple checklist like this to their clients. It complies with the various ethical standards we discussed earlier in this text:

- It does not ‘let the buyer beware’ of potential harms of receiving unnecessary, wasteful or poor quality care
- It ‘does your fellow a favor’ by identifying problems that your clients may face and providing assistance to your clients in dealing with those problems
- It addresses the ‘faulty sale’ issue by identifying a potential product defect in a typical health insurance policy – i.e. coverage for interventions that don’t work – by providing tools to customers who face this issue.

Unethical brokers would fail to introduce such a checklist. They would ‘let the buyer beware’ and suffer harms – both financial and potentially medical – from a product defect.

Review Questions

Correct answers on next page

1. About how much waste / unnecessary medical care is there in the US today?

    a. Up to about 1/3 of all spending is wasted on unnecessary medical care
    b. Most researchers estimate that less than 1% of all medical spending is wasted
    c. Cutting edge research suggests that about 150% of all spending is wasted
    d. Between about $100,000 and $150,000 annually

2. Why would an ethical broker introduce checklists of key questions for patients to ask their doctors?

    a. To help clients remember the most important questions to ask their doctors. This is particularly critical in medical care situations because patients can become emotionally upset during physician meetings and forget to ask one or more key questions
    b. To compete with doctors for patient / client respect
    c. To undermine client trust of their doctor. This follows the currently out-of-favor ethical guideline that ‘blind trust is only for the blind’ both physically and intellectually
    d. To promote alternative medical interventions which generally cost much less. Brokers know that the lower the per client expenditure, the higher the annual bonus from each insurance carrier.

3. The average health insurance policy (average of individual, couple and family plans) costs about $10,000 per year. About how much of that is wasted on unnecessary medical care?

    a. About $11,000
    b. About $10,000
    c. Less than about $96
    d. Up to about $3300

4. What is one reason brokers might not want to introduce checklists of key questions to ask your doctor?

    a. It’s too much work and brokers are inherently lazy
    b. The questions are so simple and obvious that it’s almost insulting to the clients
    c. Insurance carriers might become upset
    d. The medical community might become upset

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Correct answers in bold

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Case study: Selling ancillary products ethically

Today's benefits brokers sell many products besides simply health insurance. They typically sell dental insurance, disability insurance, long term care insurance and other types of insurance to satisfy their clients' needs.

They also often sell non-insurance products ranging from payroll services to discounted gym memberships to onsite nutritional programs to wellness programs.

This case study discusses some ethical issues arising from sale of these ancillary products and specifically to wellness programs.

Wellness programs aim to reduce medical spending by helping employees become healthier. These programs typically start from the premise that 70% or so of medical spending is driven by 5 factors: [72]

- Poor diet
- Inactivity
- Tobacco use
- Stress and
- Alcohol and drug use

Wellness programs generally seem to start with a Health Risk Appraisal (HRA), a set of questions designed to determine how healthy an employee actually is. Based on the information in the HRA, wellness vendors then supply various services targeted at appropriate employees. These include nutrition coaching, exercise coaching, stress counseling, substance counseling and tobacco cessation programs and maybe a few others. The goal, of course, is to get employees healthy, as defined by the needs identified in the HRA.

Wellness programs define health by numbers: your BMI, cholesterol levels, blood pressure levels etc. Program goals generally focus on getting your own number to match some ideal number, a BMI between 20 and 25 for example, or your blood pressure below 140/90. The assumption is that people with appropriate numbers cost

[72] This information comes from Total Care Wellness by the ESI Group. http://www.totalcarewellness.com/tcw-general-wellness-ad?leadsource=Web%20Paid&gclid=CJf5s_Cd6scCFcQUHwodwxQOCg I found them by googling 'corporate wellness programs'. They seem like a typical wellness vendor so I'll use their definitions and orientation as typical of wellness programs. I have no other relationship with them.

less medically than people with abnormal numbers so the closer the Wellness Program can get employees numbers to the norm, the more money they'll save.

'We have the program and tools to bring people's numbers into the normal / healthy range' seems the typical wellness sales presentation, which will benefit the corporate client by reducing medical costs and improving employee productivity. All of which is great if it actually works…

Sales Ethics
Case study

Let's now consider Bob, a broker who sells The World's Greatest Corporate Wellness Program (TWGCWP) to several of his clients. Bob researched corporate wellness programs and selected TWGCWP as the best; he doesn't sell products that he doesn't believe in. (That's one of his own ethical standards.) Bob's an outstanding salesman partly because of his personality and partly because of his belief that TWGCWP is the best on the market and will benefit his clients. He's passionate about wellness and passionate about TWGCWP's program.

Bob earns commissions from TWGCWP for each sale, which generates a sizeable percentage of this annual income. Many of Bob's customers seem happy and some even invite him to participate in the wellness programs along with their employees for free.

Bob is middle aged, getting paunchy around his belly and exercising less than he did earlier in life. He decides to do something about this and hires a personal trainer / nutritionist. He and his trainer work out 3x each week together. The trainer prescribes a strict nutritional program for Bob. Over the first year, Bob loses 25 pounds, increases his lean muscle mass, stops taking various medications and feels better than he has in years.

Bob opted not to participate in the program offered at any of his clients. Instead he pays his trainer $65/hour for 5 hours/ week, totaling about $15,000 per year.

Is Bob acting ethically here? He sells a program to his clients as 'the best available', collects commissions from TWGCWP but doesn't participate. He chooses a different program for himself.

Bob appears to violate the first rule of ethics 'do unto others as you would have them do unto you' and 'love your neighbor as yourself'. He sells a product to his clients ('it's good enough for them') but uses a different product himself. He happily takes his client's money for a product that he would not use himself.

How Bob could act more ethically

Bob has a couple of ethically easy-to-do activities.

First, he could participate in a wellness program at one of his accounts. This ‘eat what you cook’ approach would demonstrate his belief in the product and satisfy the ‘do unto others as you would have them do unto you’ standard. It’s an easy ethical call.

People who use the products they sell always avoid the suspicion of duplicitous behavior - that they’re acting unethically by selling one product while using a different one. Using the products that you sell is always a good idea.

But this approach may make Bob feel uncomfortable, like he’s favoring one account over another. Such participation might have a negative impact on his business, especially if one of the ‘not favored’ accounts learns of this and shifts their business from Bob to a different broker.

Would Account A become upset with Bob because he participated in the wellness program offered by Account B? Probably not. But a business risk nonetheless.

Second, Bob could contract with TWGCWP directly perhaps. This way he would eat what he cooks but not have the risks of favoring one account over another. This is also an easy ethical solution.

But TWGCWP may not contract with individuals (directly with Bob, for example) or with agencies as small as his (assuming he works for a small agency). Bob may not have this option available to him.

So Bob’s ethical problem remains. He could act ethically by participating in the wellness program offered by one of his accounts and face a very slight risk of another account finding out and becoming upset. On the face of things, this would be the most ethical way to proceed.

Or he could hire his own personal trainer and appear to act unethically, not to eat what he cooks, and argue that the risk described above actually exceeds the benefits of participation in TWGCWP’s program.

Or is something else going on here?

Some additional background
‘Just the facts’ but they’re ethically unsavory

Bob may not believe the benefit claims of TWGCWP. Yes, they may offer a nice sounding nutritional program but no, that program may not actually improve people's health and reduce their medical costs.

And yes, they may offer a nice sounding exercise program or stress reduction program but no, these may not improve health or reduce costs.

Bob may hire his own personal trainer because he wants results, not sound bites or excuses from TWGCWP. He may have done his research and decided that corporate wellness programs really don't work. Yes, he can make money selling these programs to unsuspecting clients but no, he can't sell these programs and still act ethically.

He may have simply decided to forego acting ethically and make some money from commissions!

Why might corporate wellness programs not actually work? Let's look first at nutrition programs and consider the underlying economics here. We'll start with the federal government's corn subsidy.

Our domestic corn productivity grew dramatically, from about 72 bushels per acre in 1970 to 155 bushels in 2013 with the acreage up slightly over time. [73] This expansion is stimulated, many suggest, by the $5 billion in annual corn production subsidies.

Our total corn production grew from 2010 to 2014 by about 11%, to 14 billion bushels. [74]

About 55% of this corn becomes animal feed and 5% sweetener, sometimes called high fructose corn sweetener, sometimes corn sweetener, sometimes corn sugar and even sometimes just 'sugar'.

Corn, as Michael Pollan has eloquently written, is

> what feeds the steer that becomes the steak. Corn feeds the chicken and the pig, the turkey and the lamb, the catfish and the tilapia and, increasingly, even the salmon, a carnivore by nature that the fish farmers are reengineering to tolerate corn. The eggs are made of corn. The milk and cheese and yogurt, which once came from dairy cows that grazed on grass, now typically come from Holsteins that spend their working lives indoors tethered to machines, eating corn.

[73] cornandsoybeandigest.com, Sept 2013 USDA Crop Production summary

[74] Projection by Kansas State University, May 15, 2014

> To wash down your chicken nuggets with any soft drink in the supermarket is to have some corn with your corn…after water, corn syrup is the principle ingredient. Grab a beer for your beverage and you'd still be drinking corn in the form of alcohol-fermented glucose refined from corn.
>
> Corn is in the coffee whitener and Cheez Whiz, the frozen yogurt and TV dinner, the canned fruit and ketchup and candies, the soups and snacks and cake mixes, the frosting and gravy and frozen waffles, the syrups and hot sauces, the mayonnaise and mustard, the hot dogs and bologna, the margarine and shortening, the salad dressing and relishes and even the vitamins. [75]

Each American, on average, consumes over half a ton of food that uses corn as an ingredient. Here's the breakdown: [76]

- Total average annual food consumption average: 1994 lbs / person consisting of
    - 630 lbs of milk, yogurt, cheese, ice cream (corn based as cow feed)
    - 415 lbs of vegetables, mainly potatoes and corn
    - 264 lbs of meat and poultry [77] (corn based as animal feed)
    - 197 lbs of grains
    - 273 lbs of fruit, mainly water weight
    - 141 lbs of sweetener, including 42 lbs of corn syrup
    - 85 lbs of fat, butter & oil (fat & butter from corn + corn oil)

"When you look at the isotope ratios," in American's hair and skin according to Todd Dawson, a Berkeley biologist who's done this sort of research, "we North Americans look like corn chips with legs." [78]

One result of the corn subsidies / cheap and easy availability of corn for livestock feed, is that we eat about 40% more meat, on average per person per year, than western

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[75] Michael Pollan, The Omnivores Dilemma, page 18

[76] From National Public Radio's report on food consumption by correspondent Allison Aubrey, December 31, 2011

[77] Estimate from Chartbins.com

[78] Paraphrased from Pollan, Ominvores Dilemma, page 18

Europeans [79] - about ¾ pound of meat per person per day. That's about 2.5 times the government recommendation of 1/3 pound of meat *and beans*. [80]

The US government actually recommends against eating that much meat. Here are recommendations from the US Department of Agriculture's Dietary Guidelines for Americans: [81]

Food Groups to Encourage

- Fruit
- Vegetables
- Whole Grains

Food Groups Discouraged in Large Quantities

- Meat
- Sugar

Note the advice / subsidy discrepancy. We encourage but don't subsidize fruit and vegetables. We subsidize but don't encourage meat and sugar. Money in the form of subsidies, seems to speak louder than words in the form of recommendations.

What an ethical broker needs to know this before selling a nutritional program

I did some detective work at my local Shaw's grocery store in Easton, Massachusetts. Shaw's is a typical mid-market American supermarket with some 135 stores throughout New England. It's not upscale like Whole Foods nor a budget operation like PriceRite. Shaw's prices are roughly comparable to other large chain grocery stores I've visited in my travels.

Each time, I determined prices per calorie of various foods by dividing the package cost by number of servings, then by calories per serving. For fruits and vegetables, I found average calories per piece or per pound online then determined the price per piece or

[79] The raw data comes from Chartbins.com. France, Italy, Germany, Britain and Switzerland average about 187 pounds of meat per person per year. We consume about 264.

[80] See the USDA Dietary Guidelines for Americans, 2005 edition.

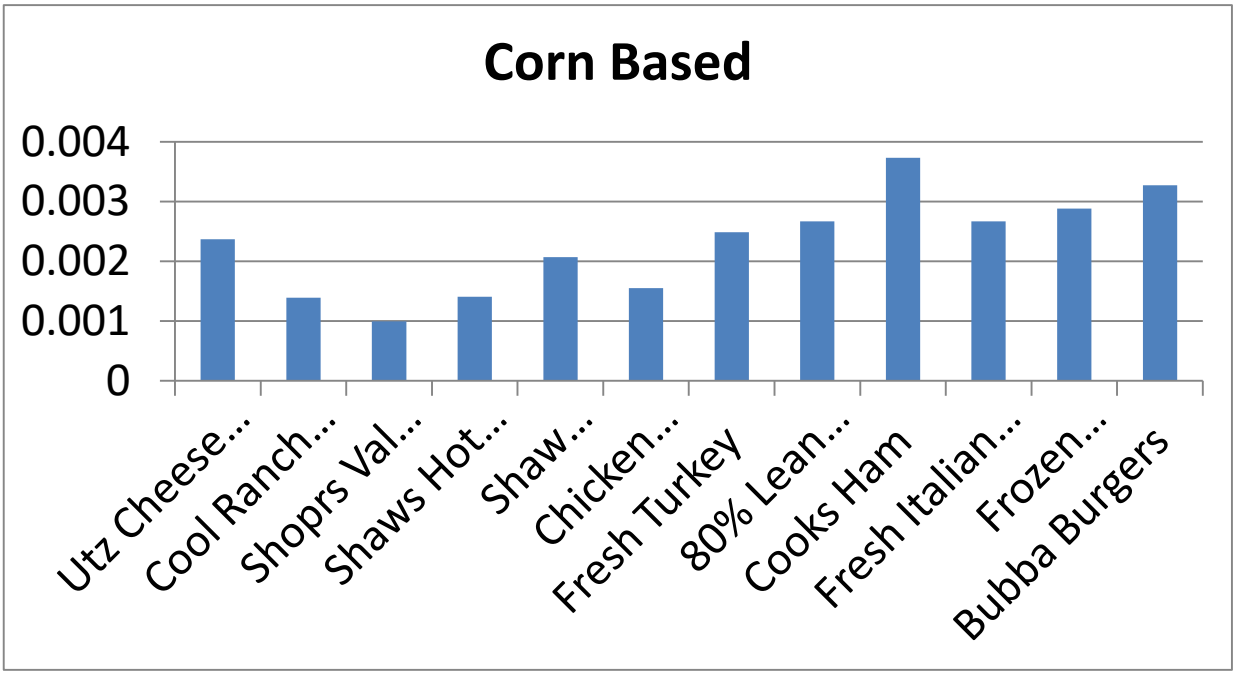
[81] I refer specifically to the 2005 recommendations because they're so clearly stated. Recommendations from other years say pretty much the same things.

pound at Shaw's. (I'm not sure the local branch manager was pleased with my detective work but, as I recall, I forgot to ask permission.)

The graphs I plotted for food costs/calorie were very similar both years. I'll reproduce the October 21, 2012 results below. I found the same ratios in 2016 and later when I reproduced this research.

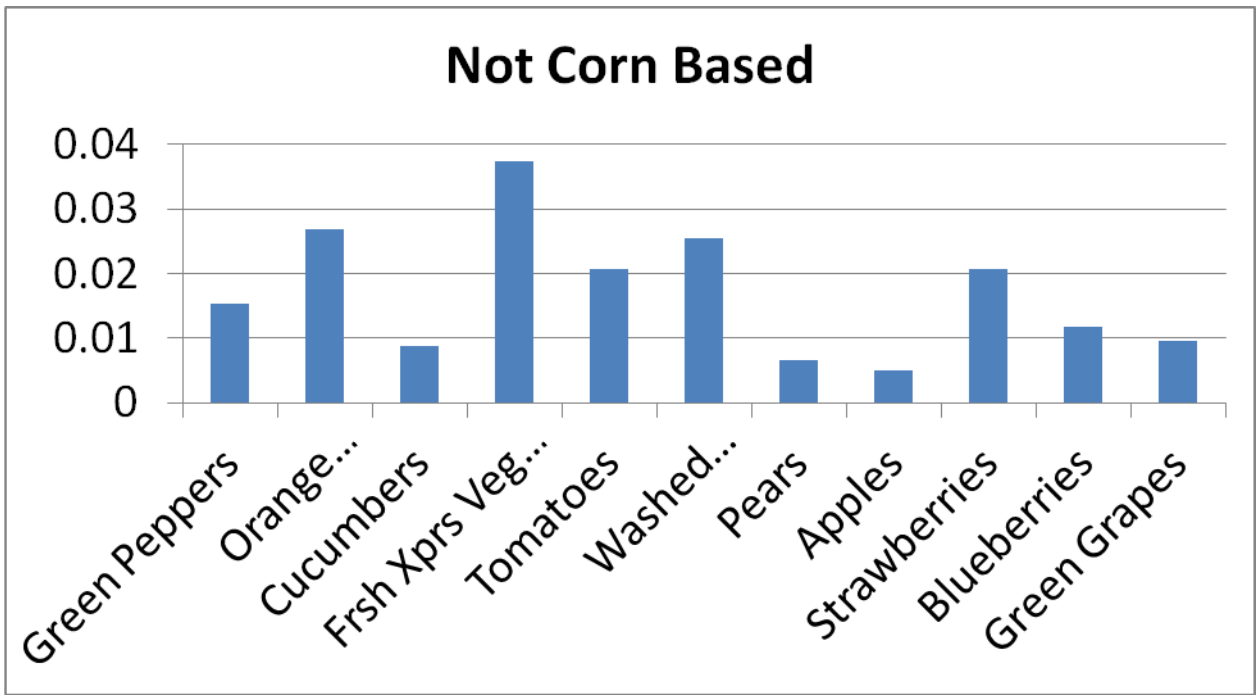
My goal in all this: determine how much it costs to purchase 2700 calories of corn-based products and compare that to 2700 calories of non-corn based. I wanted to see the impact of the corn subsidy on actual daily, monthly and annual food costs for an average American.

The first chart shows the cost/calorie of corn based foods like cheese doodles, Shoppers Value Corn Chips, Shaw's brand hot dogs and chicken legs, 80% lean ground beef, fresh Italian sausages and frozen meatballs.



As you can see, these foods cost about 2 tenths of 1 cent per calorie.

The second chart shows costs of some non-corn based foods like green and orange peppers, Fresh Express salad bags, washed green beans, tomatoes and apples – the foods encouraged by the US Department of Agriculture.



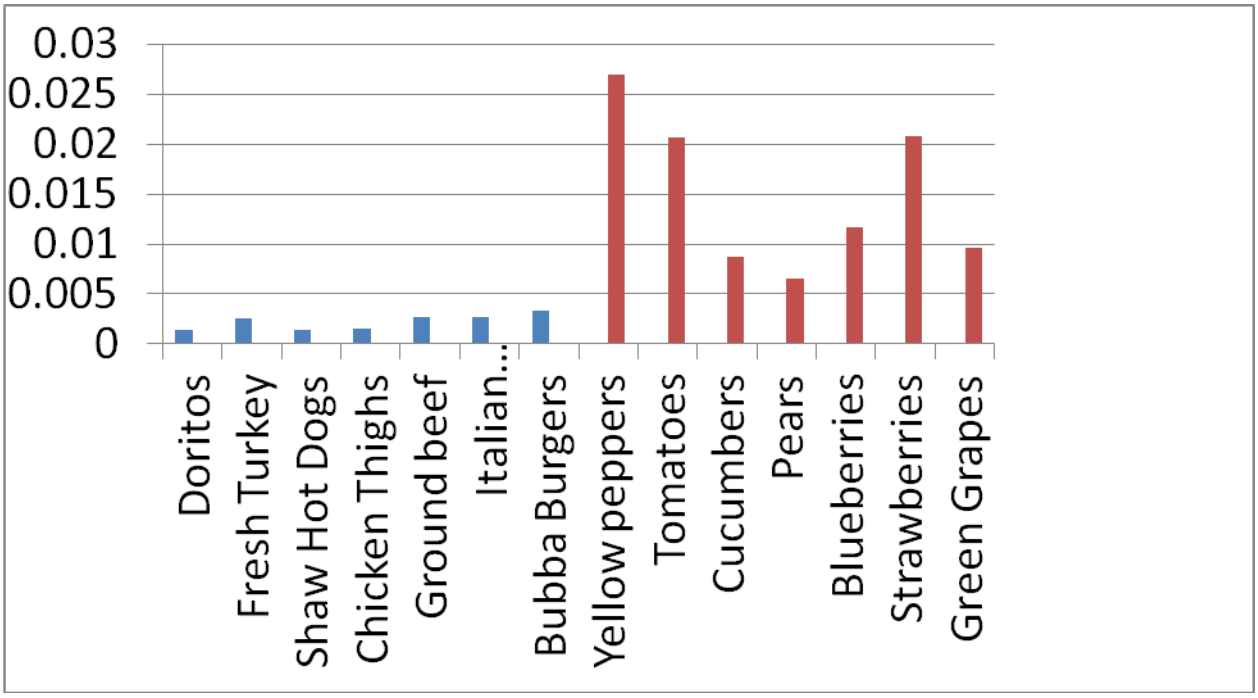
These foods average about 1 cent per calorie.

Let's assume you're a cash-strapped, low income person, trying to feed your family. You need to purchase 2700 calories of food per day to satisfy them, so when you buy the non-corn based 'healthier' foods, you choose the cheapest like apples and pears, costing about half a cent per calorie. Orange peppers, Fresh Express salad bags and strawberries become luxuries.

The difference between the *average* cost of corn-based foods and the *lowest* cost non-corn based is about 1/3 of a cent. (I'm intentionally underpricing the healthier foods to minimize the food cost differences people face; I want to understate the case here, not overstate it.)

Multiply that 1/3 of a cent times 2700 calories and you'll see that the cost of eating better runs about $9/person/day. That's not the cost of *eating*, but of eating *better*. People who eat orange peppers, bags of salad, tomatoes and strawberries see a bigger cost difference.

Here's a comparison chart showing corn based (subsidized through the corn subsidy) foods on the left in blue, and non-corn based / non-subsidized on the right in red.



At the $9 per day premium for eating better, our average American needs to spend $3000 annually to eat better.

The average household of 2.5 people spends about $7500 annually and a family of 4 about $12,000.

Remember, again, that's not the cost of *eating* but of *eating better* due to the corn subsidy, centrality of corn in our food production system and lack of subsidies for many fruits and vegetables.

Let's correlate this to saturated fat and cholesterol, both discouraged by the US Department of Agriculture's Dietary Guidelines:

- All animal based foods – low cost these days, thanks in part to the corn subsidy - contain fat and cholesterol
- Cheese consumption – high in fat and cholesterol – has tripled since the 1970s.

  Perhaps as a result, Americans combine cheese and meat far more frequently than do people in other countries. See the popularity of Philly Cheese Steak sandwiches, cheese burgers, ham and cheese sandwiches and Egg McMuffins (a delicious combination of corn based eggs, ham and cheese).

One BBC TV show, Top Gear, aired an amusing Q & A (sorry, I don't remember which episode. I normally watch it late at night) asking How to be an American: 'wear cowboy boots and put cheese on everything'. I guess that's how we're perceived internationally. Perhaps with good reason.

- No plants contain animal fat or cholesterol. This led Deepek Chopra and 3 other academic physicians to write in the Wall Street Journal [82]

  The disease that accounts for more premature deaths and costs Americans more than any other illness is almost completely preventable simply by changing diet and lifestyle.

But changing diet and lifestyle may be cost prohibitive for a large section of our population. Indeed, the Economist analyzed American food prices and concluded

> Americans, increasingly, cannot afford to eat a balanced diet [because] … Over the last four years, the price of the healthiest foods has increased at around twice the rate of energy-dense junk food. [83]

Let's switch now from discussing the 55% of corn that becomes animal feed to the 5% that becomes sweetener.

High Fructose Corn Sweetener and other corn byproducts
Only unethical brokers would ignore this information when presenting products to their clients

As our corn productivity increased in the 1980s and 90s, corn byproducts replaced sugar in breads, cereals, yogurts, soups, lunch meats and other products since corn was so cheap.

- HFCS consumption 1970s was about 26 pounds per person per year
- HFCS consumption 2000: 85 pounds per person [84]

Corn subsidies leading to less expensive corn sweeteners saved Coke and Pepsi about $100 million annually over about 20 years according to studies from Tufts University

[82] Chopra et al, Alternative Medicine is Mainstream, Wall Street Journal, January 9, 2009

[83] *Economist* 7/9/11, If you build it, they may not come

[84] USDA agricultural fact book

researchers. [85] Soda consumption has doubled since the 1970s to about 50 gallons per person per year. [86]

Michael Pollan summarized this nicely in the New York Times: [87]

> Nearly 10% of all the calories Americans consume now come from corn sweeteners; the figure is 20% for many children [because sweeteners are in *everything*]…
>
> Sweetness became so cheap that soft drink makers, rather than lower their prices, super-sized their serving portions and marketing budgets.
>
> It's probably no coincidence that the wholesale switch to corn sweeteners in the 1980s marked the beginning of the epidemic of obesity and Type 2 diabetes in this country.

Implications for the ethical broker who considers offering wellness programs

Many corporations and agencies have introduced wellness programs, attempting to educate people to eat better with inducements for lowering their cholesterol, blood pressure, blood sugar and the like. The apparent theory: people make bad food consumption decisions because they don't know better. Wellness programs typically provide both nutritional education and a financial incentive to change behavior.

We have some academic evidence about the impact of education on food consumption. A study published in the Archives of Internal Medicine in 2010 compared soda consumption among groups that received advice about the nutritional impacts of drinking soda *without* any financial inducement to change behavior, to a group that received similar advice *with* a financial incentive to change. The result:

- Those receiving advice *without* an economic incentive had no decrease in soda consumption
- Those receiving advice *with* an economic incentive did have a soda consumption decrease. [88]

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[85] Harvie and Wise, Sweetening the Pot: Implicit subsidies to corn sweeteners and the US obesity epidemic, http://www.ase.tufts.edu/gdae/Pubs/rp/PB09-01SweeteningPotFeb09.pdf

[86] Duffrey, Food Price and Diet, Archives of Internal Medicine, March 2010

[87] Pollan, When a crop becomes king, NY Times, July 19, 2002

We can estimate the required incentive size by comparing costs for unhealthy / high calorie / high fat / high cholesterol food to costs of healthier choices. As we've already seen, the difference is about $3000 per person per year. I suggest that wellness programs need to incent people at least this much to generate the desired behavioral change….but probably more.

- Healthier foods aren't as convenient as KFC or a Big Mac. Consider convenience – ease of access and preparation - when you calculate the appropriate wellness incentive. (I, for example, hate cutting fruits and vegetables. I sometimes go without simply because I find cutting so unpleasant.)

- Healthier foods don't taste as good, especially to someone habituated to high sugar, high salt, high fat foods. You'll probably need an additional incentive to get people to change their taste preferences.

  New York Times reporter Michael Moss explored this idea in some detail in his 2014 book 'Salt, Sugar, Fat'. He writes that the giant food companies aim for the taste 'bliss point' – a combination of sugar, salt and fat – that satisfies people's taste buds and gets them to want more, to keep eating as in the famous potato chip ad 'Bet you can't eat one'. The critical factor, Moss explains, is that you generally need *all three* tastes – salt, sugar and fat - to reach bliss: having only 1 of the 3 doesn't work.

  Foods outside that bliss point - fruits and vegetables for example – are less tasty and satisfying for most people. Moss presents tons of research to back his analysis, including detailed discussions with food scientists working for the largest food production companies.

  That's why I suggest you need additional financial incentives to get people to eat foods outside the bliss point.

My guess, somewhat educated but really only a guess: corporations would need to budget around $4000 per person per year (i.e. $16,000 for a family of 4) to effectuate real dietary change. Compare this to a 2013 wellness average of about $450 per employee, not per member of the employee's family. [89] Way short.

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[88] Duffrey, op cit

[89] Ladika, Well, Well: Employers Tie Health Care Financial Incentives to Specific Outcomes, Workforce Magazine, September 29, 2012

That's the wellness bind. The amount *necessary* to generate behavioral change far exceeds the amount *available* for the task.

These are, of course, averages. High income employees would probably need less of a financial incentive; low income folks probably more. (I'll address the issue of income disparity and effects on disease rates later in this chapter.)

We're starting in a $3000+ hole per person. Those private sector wellness programs may not offer much help despite their noble attempts to create systemic value.

Let's continue but change gears. Diet is only part of the 'diet and exercise' behavior change program. Let's discuss the exercise bit next.

Exercise
The rest of what an ethical wellness salesperson needs to understand

Americans don't exercise enough. We know that from many studies, including compliance with the 2008 Physical Activity Guidelines quoted at the beginning of this chapter.

Why don't Americans exercise enough? We all know that exercise is good for us. We all want to exercise more. I've never heard anyone say they want to exercise less (well, maybe a few landscapers). But too few of us do.

I'd like to focus on 3 reasons we exercise too little: the home interest deduction, our relatively low federal gas taxes and single acre zoning and suggest that they explain much about our lack of daily exercise. People, I would argue, respond rationally to economic incentives.

American population densities are much lower than European or Canadian. This allows Europeans and Canadians to develop more sophisticated and efficient urban public transportation systems. An exercise impact of this, according to Alain Desroches of the Public Health Agency of Canada in a personal email:

> The denser, mixed use development in Canada makes average trip distances only half as long as in America, so more walkable than the longer trips Americans make. Canada also has higher transit user rates per capita accounting for more walking between trips.

This was at least partly due to these country's reactions to oil price hikes in the 1970s. Most Western European countries dramatically shifted their urban transportation policies in the 1970s to curb car travel and promote public transportation and walking

according to John Pucher, writing in Transportation Policy magazine. [90] They walk to work, shopping and social events; we drive.

Our suburban physical environment, dominated by single family houses, exacerbates this problem. Over time, Americans have purchased bigger and bigger houses, generally on larger and larger lot sizes.

- In 1970 the average new house contained about 1400 square feet of living space
- In 2012 new houses averaged almost 2600 square feet

'The home mortgage interest deduction subsidizes Americans to buy bigger homes…**Americans, even poor Americans, have *almost twice as much living space* as the average resident of France or Germany'** claims Harvard economics professor Edward Glaser. [91] Our government tax policy incents us to place these homes on larger lots by making local property taxes deductible on our annual Federal income tax. Local property tax deductibility acts as a subsidy to buy larger lots: the bigger the lot, the higher the property tax deduction.

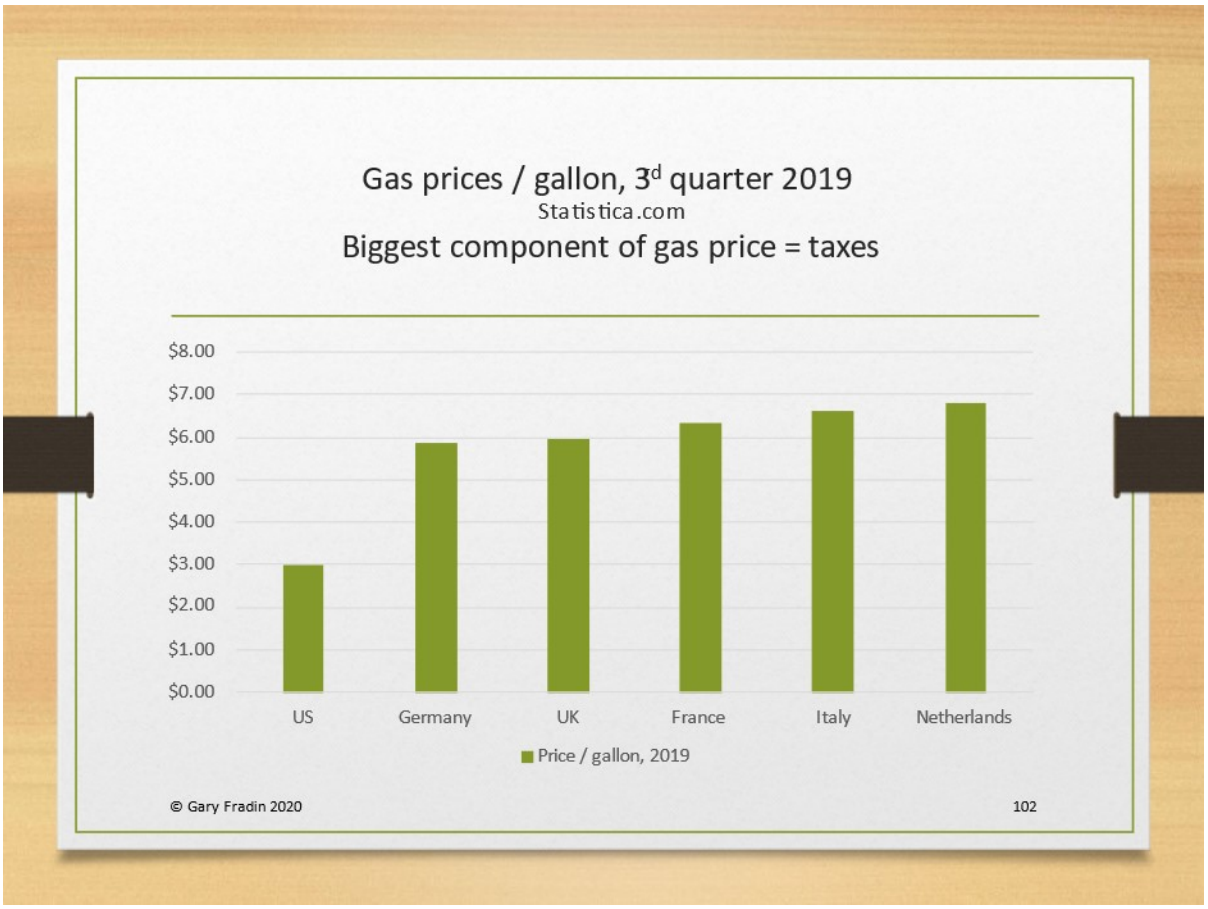
Commuting from these larger homes on larger lots requires a car. Consider the person who passes 100 dwelling units while going from home to work:

- Pass 100 homes on single acre lots = go 100 linear acres (about **4 miles** if square acres). Too far to walk. And too difficult to locate a public transportation hub nearby.
- Pass 100 homes in cluster = perhaps 5 linear acres (about **1/5 of a mile**). Easily walkable and, with high population density, much easier to locate a public transportation hub nearby.

As gas prices rose over time, our government responded by keeping gas prices low through below-world-market gas taxes. Consider this chart comparing prices per gallon of gas in various countries in 2019:

[90] Pucher, Why Canadians cycle more than Americans, Transportation Policy, 2006 http://vtpi.org/pucher_canbike.pdf

[91] Boston, Globe 5/7/10, page A19



Americans paid about $3.00 per gallon compared to western Europeans who paid about $6. These ratios have remained about constant for years.

Exercise summary

The three government subsidies – behavior incentives, if you will - significantly impact American's daily exercise:

- Home mortgages are income tax deductible, incenting people to buy bigger houses
- Property taxes are income tax deductible, incenting people to buy bigger lots
- Gas taxes are below the world market, incenting people to drive, not walk or take public transportation

Let's do a quick calculation to assess the impact:

- Assume someone walks 5 minutes from their home to and from the local public transportation stop to get to work, total 10 minutes daily, at the *home end* of each journey
- Then assume he/she also walks 5 minutes from public transportation to work each day, total 10 minutes daily at the *work end* of each journey
- The 5 day commute to and from work on public transportation accounts for 100 minutes per week of walking
- Now assume 5 more journeys per week, to shopping (because of the local availability of stores) and socializing (restaurants, cafes, bars and walks to and from public transportation) = 100 more minutes of walking per week for a grand total of 200 minutes or about 166 hours of walking exercise per year that typical suburban Americans don't get.

At 3 miles per hour – a comfortable walking pace – our typical European or Canadian walks about 500 miles more annually than a typical American, burning perhaps an extra 50,000 calories per year.

Compare this exercise pattern --- about 200 minutes of public transportation related walking per week – with the 2008 Physical Activity Guidelines for Americans. Among the statements in the Summary: [92]

> *Most health benefits occur with at least 150 minutes a week of moderate intensity physical activity, such as brisk walking.*

The physical environment in western Europe and Canada helps residents meet this standard; the physical environment in the US mitigates against it. That, in and of itself, can explain some of the obesity rate differences between us and them.

Implications for the ethical broker
hidden costs to the client / range of wellness incentives required

We've already discussed the cost difference between eating healthier and less healthy food and implications for wellness program incentives. I suggested that incentives in the $4000 range, per person per year, would probably be necessary to generate the desired food consumption behavior change, though that's a guess on my part: the actual number may be lower *or higher*.

Now let's add an exercise incentive.

[92] http://www.health.gov/paguidelines/guidelines/summary.aspx

Americans walk, according to the analysis above, about 166 hours/year less then Europeans and Canadians due to the differences in land use and availability of public transportation. How much do we need to incentivize people so they spend 166 hours of their leisure time walking?

Consider these factors:

- People generally value their leisure time at about 1/3 of their hourly income, or at least that's the rule of thumb I learned at Harvard so many years ago.
- The 2021 hourly wage rate, as reported by the US Bureau of Labor Statistics, was $23.40. [93] Let's estimate about 1/3 of that or $8/hour for budgeting purposes.

The conclusion: Wellness programs would need to pay about $1300 per person per year to incent people to spend 166 hours of their leisure time in corporation-sponsored exercise endeavors. That's the amount necessary to match our western European and Canadian counterparts.

Of course, some exercise programs burn calories more quickly than walking so an appropriately incented program would offer a range of options, time commitments and payments.

Our wellness program, therefore, would need to budget more than $5000/person/year to generate the desired nutritional and exercise changes. Remember that this may be a low estimate: I only calculated the cost difference between eating poorly and well, and not exercising at all and getting 166 hours/year. I left out any behavior change premium: some people may enjoy their current lifestyles and need some additional payment to get out of that comfort zone. I have no idea how much that might be.

Targeting behavior change

Now for the wrench in the works.

All the analysis above describes 'average' people and 'average' disease rates. But studies indicate a very wide population divergence from 'average' with some groups exhibiting far higher disease rates and others lower. Targeting programs at those with highest risk is more expensive than the 'averages' above, perhaps much more so.

One outstanding group of studies called the Whitehall studies aimed to identify groups at highest risk. Unlike most medical studies, the Whitehall folks didn't focus on *what*

[93] News Release, Bureau of Labor Statistics, April 16, 2021, USDL-21-0655

causes disease but rather *who gets sick*. Incorporating their information into wellness programs will help managers target interventions.

Some background: 'Whitehall' in Britain is the same as 'Capitol Hill' in the US, the seat of national government power and offices of many national civil servants. The Whitehall studies have tracked disease rates among British bureaucrats since the late-1960s.

Whitehall researchers choose the British civil service as their Petri dish for several reasons:

- British public administrators tended to remain on their jobs for many years, often their entire career. This gave researchers longitudinal information.
- British privacy laws, at least during the initial period of these studies, allowed researchers to identify specific individuals rather than just groups of people. This gave researchers the ability to follow up on specific disease and behavior details at an individual level.
- The British civil service was very hierarchical and status oriented, consisting of several different grades. Oxford and Cambridge graduates entered the service at the highest grades, made the most money and enjoyed the highest status; high school dropouts exactly the opposite.

  Given the status-based nature of hiring and promotions, it was highly unlikely that someone entering the civil service at grade 4 would be promoted to grade 2 or even grade 3: the grade at which you entered was generally the grade from which you retired.

  This gave researchers the ability to track disease rates by income and status.

I'll let Professor Michael Marmot, Director of the Whitehall studies, summarize what they found: [94]

- *Firstly, just looking at heart disease, it was not the case that people in high stress jobs had a higher risk of heart attack, rather it went exactly the other way: people at the bottom of the hierarchy had a higher risk of heart attacks.*

[94] These quotes come from an interview at UC Berkley in March 2002, http://globetrotter.berkeley.edu/people2/Marmot/marmot-con3.html

- *Secondly, it was a social gradient. The lower you were in the hierarchy, the higher the risk. So it wasn't top versus bottom, but it was graded.*
- *And, thirdly, the social gradient applied to all the major causes of death.*

Those at the bottom of the hierarchy were 3x more likely to die of heart disease than those at the top.

Today's corporate benefits advisors and wellness program managers – at least, those who have read this far in this chapter - could have predicted this, largely based on the food cost analysis above. People at the bottom of the hierarchy earned less money so ate a less healthy diet. They had, consequently, higher cholesterol rates, higher blood pressure, were more frequently overweight and consequently less healthy.

Unfortunately that conclusion is wrong! Here's Professor Marmot again

- *we looked at the usual risk factors that one believes that are related to lifestyle -- smoking prime among them, but plasma cholesterol, related in part to fatty diet and an overweight, sedentary lifestyle.*
- *We asked how much of the social gradient in coronary disease could be accounted for by smoking, blood pressure, cholesterol, overweight, and being sedentary.*
- *The answer was somewhere between a quarter and a third, no more.*

After controlling for risk factors like cholesterol and smoking, people in the lowest grades were twice as likely to die of coronary disease as those in the highest grades.

- *The social gradient applied to all the major causes of death -- to cardiovascular disease, to gastrointestinal disease, to renal disease, to stroke, to accidental and violent deaths, to cancers that were not related to smoking as well as cancers that were related to smoking -- all the major causes of death…*
- *2/3 at least of this gradient is unexplained*

Was Whitehall unique? Does it apply to America? Or, stated differently, is Senator Frist right (from the first page of this chapter) when he claims 'health is socio-economic status and disparity'?

The answer is yes to the second two questions above. These patterns exist not only in Britain but also here in the US. Here's the New England Journal of Medicine discussing Class: The Ignored Determinant of the Nation's Health [95]

- Differences in rates of premature death, illness and disability are closely tied to socio-economic status
- Unhealthy behavior and lifestyle ***alone*** do not explain the poor health of those in lower classes
- There is something about lower socioeconomic status *itself* that increases the risk of premature death

Sounds like Whitehall's conclusion.

The International Journal of Cancer considered the impact of socio-economic class on breast cancer survival rates. Their rather startling conclusion [96]

- breast cancer patients of low Socio-Economic Status have a significantly increased risk of dying as a result of breast cancer compared to the risk in patients of high SES.
- Low SES patients were diagnosed at a later stage, had different tumor characteristics and more often received suboptimal treatment.

However…

- Even after adjusting for all these factors, the risk of dying of breast cancer remained 70% higher among patients of low SES than among patients of high SES.

Madeline Drexler of Harvard's School of Public Health summarized the issue here succinctly

> '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 …' [97]

[95] September 9, 2004

[96] Bouchardy et al, Social class is an important and independent prognostic factor of breast cancer mortality, International Journal of Cancer, Vol 119, Issue 5, March 2006

[97] Drexler, The People's Epidemiologists, Harvard Magazine, March 2006

The 2015 Dietary Guidelines Advisory Committee report echoes this, saying (in typical governmental bureaucratese)

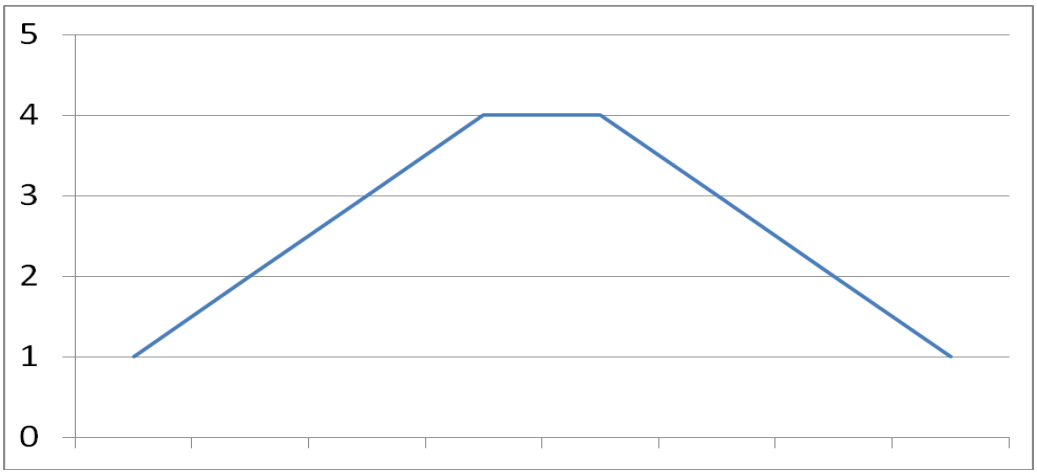
- Health and optimal nutrition and weight management cannot be achieved without a focus on the synergistic linkages and interactions between individuals and their environments [98]

That's the same conclusion Professor Stuart Wolf reached in his study of disease rates and social patterns in very poor but very egalitarian Roseto, Pennsylvania [99]

> the characteristics of a tight-knit community are better predictors of healthy hearts than are low levels of serum cholesterol or tobacco use.

Whitehall and wellness programs

Let's apply this information to a typical corporate wellness program. Screening for cholesterol, blood pressure and other disease indicators assumes a bell curve model.



A few people at the far left have low cholesterol, blood pressure or blood sugar and are unlikely to get sick, while people at the far right have high levels and are therefore at risk. Most people fall in the middle. The appropriate wellness program focus using this model is the group at the far right.

But Whitehall, the New England Journal of Medicine, Madeline Drexler and Stuart Wolf suggest a different disease risk model:

[98] 2015 Dietary Guidelines Advisory Committee report issued February 19, 2015, Part D, Chapter 4

[99] Wolf and Bruhn, The Power of the Clan: Influence of Human Relationships on Heart Disease

Here, a lot of people earn $50,000 or less per year while a few earn $250,000 or more. Whitehall suggests that disease rates among the $50,000 earners will run about 3x the rate of the $250,000 folks, making the low income folks and equally appropriate wellness program target.

Let's assign some numbers to a hypothetical risk scenario. The company above has 10 employees earning $250,000 or more annually (high income, high status) and 150 employees earning $50,000 or less (low income, low status). For every heart attack in the high income, high status group, how many heart attacks can we expect among the low income people?

Take a second to think this through.

The correct answer is 45. Three times the risk and 15 times the number of people. While it's unlikely that these numbers would play out in a company as small as this, the ratios would likely hold over very large numbers of companies and employees.

Whitehall and the 2015 Dietary Guidelines Advisory Committee report

The 2015 Dietary Guidelines Advisory Committee report specifically acknowledged that low income groups face greater impediments to healthy lifestyle behavior than do others in our society, saying, for example 'household food insecurity hinders the access to healthy diets for millions of Americans'. [100] More than 49 million people in the United

[100] From the Executive Summary of http://www.health.gov/dietaryguidelines/2015-scientific-report/PDFs/Scientific-Report-of-the-2015-Dietary-Guidelines-Advisory-Committee.pdf

States, including nearly 9 million children, live in food insecure households. [101] For these people, the issue is not 'what should I eat' but rather 'will I eat anything at all'. Food access, rather than nutritional quality, becomes a primary concern. As does food price.

Related to this, the Committee found that closer proximity and greater access to convenience stores (as in lower income, inner city food deserts) is associated with significantly greater Body Mass Index scores in the community and/or increased odds of being overweight or obese. [102] Access, not quality, often rules nutrition decision making.

The Committee bluntly stated that

> nutrition services *that take into account the social determinants of health are largely unavailable in the U.S. health system* to systematically address nutrition-related health problems, including overweight and obesity, cardiovascular disease, type 2 diabetes, and other health outcomes. [103]

Can employer-based wellness programs address this disparity?

Implications for ethical brokers
Addressing target populations cost much more than vendors admit…
and face much bigger obstacles

We've previously discussed how corporate wellness programs need to budget some $4000 annually per person to affect nutritional behavior change, and $1600 to affect exercise change, totaling over $5000 per person per year if they hope to accomplish their goals.

Now we see that targeting these programs to the most at risk – and medically most expensive - can raise those amounts. The lowest income, lowest status employees are probably the least interested in the program. They worry about doing their jobs, losing their jobs and may even need to rush to a second job just to pay their rent.

- They're probably suspicious of people telling them to eat or behave differently.
- They may face food insecurity issues.

[101] Part B of the 2015 DGAC report

[102] DGAC report, Part D, Chapter 4, Question 2

[103] From the Executive Summary of the 2015 DGAC report, emphasis added

- They probably lack any financial cushion or discretionary income, so the wellness incentive may go to other basic needs like rent, car payments, clothes or children's education rather than their own behavior change.

These people - the corporate medical cost drivers - are the most expensive to reach and impact.

Let's review Bob's ethical situation

Bob may know all these facts about corn subsidies and their impact on food costs, the impact of zoning on exercise rates and the relative disease rates based on income levels. He may have decided not to participate in TWGCWP's programs at any of his clients *because he knows that these programs don't work*.

In fact, he may have decided to act unethically for the sake of a commission!

And that's the real ethical dilemma of selling wellness programs. They don't work well, if they work at all. Bob apparently knew this so, when he decided to lose some weight and get back into good physical shape, he hired his own trainer.

This then raises the bigger question: can any broker act ethically and sell corporate wellness programs?

Based on all the information presented above, the answer appears to be no. It is impossible to act ethically and sell wellness programs.

The tragedy in this unethical behavior

Corporations purchase wellness programs from brokers like Bob in their attempt to control medical costs. In doing so, they admit (implicitly or otherwise) that various government programs – the corn subsidy, single acre zoning, etc – lead people in the wrong / unhealthy direction so they need to step in and try to make their own employee population healthier. It's a process that cannot work since no company's financial resources can match the government's.

Yet our healthcare system wastes $700 billion or more annually on unnecessary care: our inefficiently organized *supply* of medical services exacerbates the problems of our unnecessarily high *demand* for those services.

Corporate wellness programs won't ameliorate these trends and, even if they do, probably won't reduce the number of unnecessary medical tests or the false positive rate from those tests.

- Probably won't reduce the number of back MRIs and unnecessary spinal fusion surgeries that result [104]
- Probably won't reduce the number of head CT scans related to sinusitis, advised against by the American College of Emergency Physicians and the American Academy of Pediatricians [105]
- Probably won't reduce the number of pediatric antibiotic prescriptions for ear aches, unnecessary 95% of the time and harmful about 15% [106]
- Probably won't reduce the amount of ineffective medical care like postnatal dexamethasone therapy for lung disease of prematurity, use of laparoscopic mesh for inguinal hernia repair or any of the 144 other ineffective interventions listed in Vinay Prasad's seminal article in the Mayo Clinic Proceedings [107]
- Probably won't reduce geographic treatment variation rates for cancer treatments, orthopedic treatments, cardiovascular treatments and others that alone represent about 1/3 of medical spending, at least according to tons of research published by scholars at the Dartmouth Institute, among other places.

In all these senses, wellness programs fail to deliver the goods in part because they're based on a tragic misunderstanding of economic incentives and in part because they're ill targeted. Even if wellness programs worked well, we would still waste the same $700 + billion annually. Being thinner doesn't lead to making wiser medical treatment choices.

The well informed broker knows all this information. When he or she acts on it, the ethical brokers probably downplay the importance of corporate wellness programs while the unethical brokers may choose commissions over client impacts.

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[104] See ChoosingWisely, position statements by the American Academy of Family Physicians and others http://www.choosingwisely.org/doctor-patient-lists/imaging-tests-for-lower-back-pain/ . Some research suggests that people who have back MRIs shortly after they feel back pain are 8x more likely to have back surgery but don't recover faster.

[105] See ChoosingWisely, http://www.choosingwisely.org/?s=ct+scans+sinusitis&submit=

[106] See Antibiotics for Otitis Media on the NNT website, http://www.thennt.com/nnt/antibiotics-for-otitis-media/

[107] See Prasad et al, A Decade of Reversal, Mayo Clinic Proceedings, August, 2013 http://www.mayoclinicproceedings.org/cms/attachment/2007391767/2029532464/mmc2.pdf

Review Questions
Correct answers on next page

1. About how much more does it cost, per calorie, to eat healthier foods?

a. About $10
b. About 1/3 of a cent
c. About $100
d. About $1000

2. Americans each eat about 2700 calories of food daily. About how much more does a typical family of 4 need to spend in order to eat healthier - rather than less healthy - food *per year*?

a. About $1.96
b. About $12,000
c. About $125
d. About $100

3. The US government encourages us to eat certain foods and discourages us from eating large quantities of other foods. Which food groups does the government subsidize?

a. Both
b. The food groups we are discouraged from eating in large quantities
c. The food groups we are encouraged to eat
d. Neither

4. This text suggested a ball park annual amount of money necessary to incentivize people to change their diets and choose healthier foods rather than less healthy. What is that annual amount of money?

a. $150
b. $4,000
c. $200
d. $100,000

5. What impact do our zoning laws have on the amount of daily exercise most Americans get?

a. Single acre zoning makes our neighborhoods more beautiful and less crowded, thus making evening / after dinner walks more attractive.
b. Single acre zoning generally puts more distance between someone's house

and work, requiring driving to work, rather than walking to a public transportation stop. This lowers the daily amount of walking most Americans do, as compared to Europeans or Canadians.
c. Single acre zoning makes the distance to the nearest gym too long to drive, especially in the winter when it's typically cold and snowy outside
d. There is no relationship between zoning laws and daily exercise

6. This course suggested that the 'average' European or Canadian walks about 166 hours per year more than a similar American. Studies show that people value their free time at about 1/3 of their average hourly wages. The average American wages in 2014 were about $24. Roughly how much would an employer have to pay an employee to incent that employee to walk 166 hours in his or her spare time?

a. $175
b. $1600
c. $150
d. $200,000

7. About what impact will wellness programs have on our rate of ineffective or harmful medical services, like using head CT scans to diagnose sinusitis, or using laparoscopic mesh for inguinal hernia repair?

a. A major impact. Wellness programs will reduce the rate of these and similar ineffective medical services by well over half
b. No impact at all
c. Wellness programs are expected to eliminate all ineffective and unnecessary medical care within 8 – 10 years
d. Recent studies suggest a decrease of 5 – 10% of all ineffective services by 2025.

Review Questions
Correct answers in bold

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Some tools to help brokers act ethically

Let's summarize this course so far:

- Part 1 introduced some basic business ethical standards, specifically that brokers who 'let the buyer beware' act *un*ethically while brokers who 'do your fellow a favor' act ethically.
- Part 2 introduced one specific health insurance problem, that much of our medical spending is wasted on unnecessary services. Part 2 discussed how ethical brokers can teach clients how to use checklists to differentiate necessary from unnecessary medical interventions.
- Part 3 discussed sale of ancillary products, specifically wellness programs. It demonstrated that unethical brokers can sell these programs – and collect commissions – without regard to the fundamental efficiency of these programs. In other words, wellness programs generally do not (even 'cannot') generate the desired outcomes. Unethical brokers ignore this information and continue to sell these programs while ethical brokers 'do their follows a favor' and explain the pitfalls of investing in corporate wellness programs.

In Part 4, we'll expand on our Checklist idea and introduce some targeted checklists for specific medical needs. These are only examples / introductions to consumer education. But they're a way to act ethically in our current high deductible health insurance environment.

Questions an ethical broker would introduce to clients about Screening Tests

Some screening tests are beneficial, others less so. These 4 questions will help you decide which are which.

We'll focus on Event X, a specific medical event like having a heart attack or dying of colon cancer. You can substitute whichever medical event concerns you for Event X. Be sure to include a time period, say 5 or 10 years. Ask '*Out of 100 people like me...*'

1. ...how many will have Event X if they *don`t* have the screening test?
2. ...how many will *still have* Event X if they have the screening test?
3. ...how many *actually benefit* from the test and treatment by avoiding Event X?
4. ...how many are *harmed* by the screening test and related treatment?

We'll explain each question individually below.

Two types of patients and two types of medical tests:

- First, *symptomatic* people can benefit from earlier care (surgery on a smaller tumor for example), *due primarily to education*.

  For example a woman may feel a lump in her breast and visit her doctor; she's learned that breast lumps are potentially serious.

  She'll have a diagnostic test to identify her breast lump. In other words, *symptomatic* people get *diagnostic* tests to identify their medical problems and develop treatment plans.

  Diagnostic tests are scheduled based on medical need.

- Second, *asymptomatic* people may benefit from earlier care *due to primarily to screening tests*.

  Screening tests are scheduled based on your calendar.

  The same woman (as above) may have her annual mammogram every May 15th because she can't feel every microscopic abnormality in her breasts.

  We'll focus, in this section, on asymptomatic people getting screening tests.

The four questions listed above can help you determine how well tests actually work.

Consider, for example, the statement 'breast cancer mortality rates are down over time'.

This does not necessarily mean that mammography *screening* tests work terribly well or account for all the improvement. [108] The breast cancer mortality rate reduction may occur because symptomatic women get earlier – and, over time, better – treatment. When you talk to your doctor about tests, ask whether patient benefits come primarily from screening tests on asymptomatic people or diagnostic tests on symptomatic ones. It's an important distinction.

[108] See, for example, Bleyer, *Effect of Three Decades of Screening Mammography on Breast Cancer Incidence*, New England Journal of Medicine, November 22, 2012 or *Ignoring the Science on Mammograms*, New York Times, November 28, 2012 by Dr. David Newman, and *Vast Study Casts Doubts on Value of Mammograms*, Gina Kolata, New York Times, February 11, 2014

Questions an ethical broker would introduce about screening tests
Out of 100 people like me,
how many will have Event X *without* the screening test?

This question helps you determine which medical risks are big enough to concern you. Not all are.

Some people may decide that a 7 in 100 chance of having an event is too *small* a risk to warrant a screening test.

- Others may think that a 1 in 100 chance is *big* and definitely warrants the test.

No one answer fits everyone. Words like ‘big’ and ‘small’ mean different things to different people so don’t help you decide.

Remember when you ask this question to include a time frame: over 5 years or over 10 years for example, whichever concerns you the most.

Appropriate answers come in this form:

- ‘3 in 100 people like you will have Event X in the next 5 years without a medical intervention’

Inappropriate answers come in this form:

- ‘You’re at risk of having Event X’
- ‘A significant number of people like you are likely to have Event X’
- ‘Enough people like you will have Event X to justify screening’

The downsides of unnecessary screening include overdiagnosis and false positive harms.

A good follow up question: after you learn how many people, out of 100 like you, will have Event X *without* a screening test, ask Out of 100 people like me, how many will *still* have Event X if they have the screening test?

Remember, you can substitute ‘stroke’ or ‘hip fracture’ or ‘develop diabetes’ or many others for ‘Event X’, depending on your own situation.

Questions an ethical broker would introduce about screening tests
Out of 100 people like me,
how many will *still have* Event X *with* the screening test?

This question helps you determine how well the screening test works; it reminds you and your doctor that screening tests aren't perfect.

You may learn, for example that 6 people out of 100 like you will *still have* Event X even if they have the screening test. Knowing how many people still have the event may influence your decision to have the screening test at all.

The answer to this question leads directly to *Out of 100 people like me, how many actually benefit from the test by avoiding Event X?*

Questions an ethical broker would introduce about screening tests
Out of 100 people like me,
how many *actually benefit* from the test by avoiding Event X?

This tells the likely benefit *to you* of a particular screening test.

- Benefit is the difference between the number of people who would have the event *without* screening, and the number who *still* have it, with screening. Include a time period, say over 5 or 10 years.

Remember: you need to know 2 numbers to determine how well a screening test works. You can't tell from just 1 number.

What about 5-year survival rates?

Five year survival rates (or 10 or 20 year for that matter) do not tell you how many lives a screening test saves.

Here's why:

- The 5-year survival clock starts when the abnormality (generally a suspected cancer) is found.
- As our screening technologies improve over time, we identify smaller and smaller abnormalities. Identification starts the 5-year survival clock.

Researchers call this 'lead time bias': lead time is the amount of time between the detection of a disease and its clinical presentation. By identifying smaller abnormalities, we start the clock earlier and automatically extend the lead time, thus always increasing the number of people who 'survive' at least 5 years.

But this doesn't tell us if the screening tests saves any lives; people may still die at the same age only now live longer with a diagnosis. (Or they may actually live longer. You can't tell from only 1 number.)

Beware of relying on 5-year survival statistics. They may mislead you. We have much better ways to measure screening test effectiveness. Ask the questions introduced in this chapter, for example. You'll get more useful information.

Questions an ethical broker would introduce about screening tests
Out of 100 people like me,
how many are harmed by the screening test?

We discussed some key harms previously. To reiterate and summarize:

- False positive results indicate that you have a medical problem when, in fact, you really do not.
- Treatment harms including medication side effects, surgical error or infection.
- Overdiagnosis or the identification and treatment of abnormalities that will never harm you.

False positives and overdiagnosis may lead to unnecessary treatment.

Ask your doctor about all three of these risks.

****

Remember that there are benefits and risks of *testing* and benefits and risks of *not testing*.

Ask yourself if you're more concerned about

Missing a potentially dangerous abnormality until it's too late Many dangerous abnormalities can be successfully treated once they become symptomatic. Unfortunately we don't always know which or how frequently.

Or

Suffering the potential harms of false positives and/or overdiagnosis

You may not be able to have one of these without the other.

Case Study:
Asking these 4 questions about colonoscopies

I'll provide estimates for a **50 year old non-smoking male over 10 years**. Your own numbers may differ based on your age, sex, smoking status and other factors. See the references below.

I listed the answers in two forms: *out of 100* people and *out of 1000* because the incidence and benefits are decimal points on a scale of 100. I hope this clarifies and doesn't confuse the issue.

I choose colonoscopies because the data are fairly easy to get and because this is a generally non-emotional test. No other reasons. I'm neither a fan of, nor opposed to, colonoscopies.

Out of a hundred 50-year old non-smoking men, how many will die of colon cancer over a 10 year period without colon cancer screening? Our answer comes from Risk Charts published in the Journal of the National Cancer Institute: it's about .2 (that's 2/10ths of 1). [109]

> Since people get confused by decimal points, we can also state this risk as 2, 50-year old non-smoking men per thousand will die of colon cancer over 10 years. Two per thousand is the same as .2 per 100. It's also the same as saying that 99.8% of 50-year old non-smoking men will not die of colon cancer over a 10 year period. Which presentation impacts you the most? The colon cancer mortality risk increases as you age. Sixty and 70 year old men face higher risks than do 50-year olds. I've stated *average* risks. You may face higher or lower risks based on family history, diet or other factors. Ask your doctor if you deviate from the norm, and if you deviate, how much and in which direction.

Out of one hundred 50-year old non-smoking men, how many will *still* die of colon cancer over a 10 year period *with* screening? The answer is about .1 (that's 1/10th of a person) or 1 per thousand men screened will still die of colon cancer.

> I base this on two large studies that found about a 50% colon cancer mortality reduction from colon screening exams and associated treatment, one published in the New England Journal of Medicine [110] and the other in the Lancet. [111]

[109] Woloshin et al, Risk Charts, Journal of the National Cancer Institute, June 5, 2002. You can find the same information on the VA Outcomes Group website, http://www.vaoutcomes.org/our_work/risk-charts/

[110] Zauber et al, Colonoscopic Polypectomy and Long-Term Prevention of Colorectal-Cancer Deaths, New England Journal of Medicine, February 23, 2012, easy to read summary in the New York Times, *Report Affirms Live Saving Role of Colonoscopy*, Denise Grady, February 22, 2012

Out of 100 fifty-year old non-smoking men, how many benefit from screening by avoiding dying from colon cancer? This is a simple subtraction from the numbers above. Colonoscopy screening prevents about .1 death in our 100 person reference group of 50 year-old non-smoking men, or 1 death per 1000 non-smoking, 50-year old men over 10 years. The benefit increases with age. Do you see why statements like 'colonoscopy reduces colon cancer mortality by 50%' can be misleading?

Out of 100 fifty-year old non-smoking men, how many are harmed by colonoscopies? Research suggests that between .1 and .2 people per hundred screened suffer colon bleeding or perforation, about the same as the number of 50-year-old non smokers who avoid dying over 10 years.

> The Johns Hopkins Medicine Colorectal Cancer website states, for example: *The examination has an extremely small risk of complications (0.1% to 0.2% risk of bleeding or perforation).*[112]

You can now make an informed decision about colonoscopy.

> You know the benefit per 100 fifty-year old non-smoking men over 10 years is about .1 life saved over 10 years.
>
> You also know the risks, about .15 people harmed by colon perforation or bleeding per 100 people screened.

Do you think the benefits outweigh the risks? If so, at all ages? Patients with this information can now have *informed* discussions and can make *wise* decisions.

A note on phrasing: the Johns Hopkins website calls colonoscopies *'crucial to improve one's chances against colon cancer'* with *'an extremely small risk of complications'*.

But we've shown that the benefits and harms are about ***the same*** for 50 year old men.

How can the benefits be 'crucial' and risks 'small' *if they're the same number*?

The answer: patients don't ask the right questions!

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[111] Atkin et al, Once-only flexible sigmoidoscopy screening in prevention of colorectal cancer: a multicentre randomised controlled trial, Lancet, April 28, 2010, easy to read summary in Dr. Margaret McCartney's blog http://margaretmccartney.com/2010/04/29/bowel-cancer-screening-and-noise-to-signal-ratio/

[112] http://www.hopkinscoloncancercenter.org/CMS/CMS_Page.aspx?CurrentUDV=59&CMS_Page_ID=33CD25B0-CCC6-4F55-A226-3C202E67D0B1, downloaded 1/24/14

The psychology of reciprocals:
Our final word on reporting benefits and risks

Remember reciprocals from high school? Most people forgot…unfortunately. Learning that .2 in 100 men will die of colon cancer is the same as learning that 99.8 in 100 –--- that's 99.8% --- will *not* die.

- Some people respond to learning that '.2 in 100 will die' by thinking 'I might be one.'
- Others respond to learning that '99.8% will not die' by thinking they'll be fine.
- Different medical treatment actions follow from these different reactions.

How do *you* respond to alternate presentations of the same risks?

Try to remember, whenever you hear medical risks and treatment impacts, to consider the reciprocal. It may affect your treatment choices.

Questions an ethical broker would introduce to clients about Medications

Here are four useful medication questions that act as a checklist:

1. What is the Number Needed to Treat for this medication?
2. What is the Number Needed for Harm for this medication?
3. When do I stop taking this medication?
4. Are there any long term studies about the effects of this medication?

Questions an ethical broker would introduce about medications
What is the Number Needed to Treat?

The Number Needed to Treat (NNT) tells how many people need to take a medication for 1 person to benefit. The NNT tell you *how well* a medication actually works. Doctors learn about NNTs in medical school so will understand this question.

- An NNT of 75 means that 1 in 75 people who takes it, actually benefits from it; 74 do not.
- The lower the Number Needed to Treat, the more effective the medication.

Researchers calculate the Number Needed to Treat from a *comparative study*.

That compares a group of people that *received* the medication to a similar group that *did not*.

Researchers identify how many more people benefited in the medication group then calculate how many people needed to take the medication for 1 to benefit.

Good NNT studies are very specific, identifying benefits, personal characteristics (age, disease history, etc) and a specific time period.

Two NNT examples
for illustration purposes only

I choose these examples because the data are relatively easy to find. See the references below.
I'm neither a fan of, not opposed to Vitamin D supplements or statin medications.

Vitamin D supplements for elderly, institutionalized adults to prevent hip fractures have an NNT of about 36. [113]

That means 35 out of 36 people who took Vitamin D supplements did not benefit over a 3 - 5 year period by avoiding bone fractures. You learn that from a comparative study.

Most of these people didn't benefit because they were not going to have a bone fracture during this time period anyway, so the medication did not help them.

A few may not have benefited because they *still* had bone fractures.

But all 36 spent money on the medicine and exposed themselves to Vitamin D harms. (We'll discuss harms in the Number Needed for Harm section below.)

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Statins to prevent a first heart attack or stroke in people *with* risk factors but *without* known heart disease have an NNT of between 70 and 250 over 4 years. [114]

Again, most people weren't going to have a heart attack during this time period anyway and a few still had heart attacks despite taking the statins. Unfortunately, we don't know in advance which people fall into which category.

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[113] This calculation comes from www.TheNNT.com

[114] This NNT estimate comes from Bloomberg BusinessWeek, Do Cholesterol Drugs Do Any Good, January 16, 2008

Hundreds of NNT calculations exist. Ask your doctor about them. Follow up with *What is the Number Needed for Harm?*

Questions an ethical broker would introduce about medications
What is the Number Needed for Harm?

The Number Needed for Harm (NNH) tells how many people need to take a medication for 1 person to be *harmed*.

It's exactly the opposite of the Number Needed to Treat

- An NNH of 75 means 1 in 75 who take the medicine is harmed by it; 74 are not harmed.
- The higher the Number Needed for Harm, the safer the medicine.

Let's see the Number Needed for Harm in our Vitamin D and statin examples from the previous page.

First, the Vitamin D example. TheNNT.com website estimates the Number Needed for Harm from kidney stones or renal insufficiency from Vitamin D supplements: 36, *the same as the Number Needed to Treat!*

> In other words, for every person who benefits from Vitamin D supplements by avoiding a hip fracture, another suffers kidney harm.

The wise patient, along with his or her physician, can now make an informed decision: am I more concerned about suffering a hip fracture or suffering renal harm? Or equally concerned? Different people can reasonably answer those questions differently.

Second, the statin example. Studies show that the Number Needed for Harm for causing diabetes among people who took statins for 4 years is 255. [115]

> The *well informed* patient now understands that for about every 2 heart attacks prevented, 1 person develops diabetes. The *wise* patient discusses this information with his or her doctor and decides together with his/her doc how to proceed.

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[115] Sattar, Statins and the Risk of Incident Diabetes, The Lancet, Feb 27, 2010. There are other statin risks also, but I wanted to keep this example simple. For an easy-to-read summary of statin risks, see Dr. Barbara H. Roberts, The Truth About Statins, Chapter 3. Roberts lists many risks but only provides NNH calculations for some, including rhabdomyolysis.

Learning the Number Needed to Treat and Number Needed for Harm allows you to compare medication benefits and harms. They're extremely powerful tools.

Additional comments about NNTs and NNHs

Once you learn a medication's Number Needed to Treat, you need to decide if that number satisfies *you*.

Different people make different decisions about the same numbers.

Dr. Nortin Hadler of the University of North Carolina Medical School, for example, suggests that public insurance like Medicare only cover services with NNTs up to 20 for 'hard outcomes' like death, stroke, heart attacks, renal failures, etc, and only cover NNTs up to 5 for 'soft outcomes' like feeling better or enjoying less depression. [116]

- An NNT of 5 means that 80% of people taking the medicine do not benefit from it. Do you understand why? (Only 1 in 5 benefits. 4 in 5 do not. That's 80%.)

Where do you draw your line? Different people make difference decisions. That's a topic to discuss with your doctor.

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Final thought: Dr. David Newman suggests that knowing the Numbers Needed to Treat and Harm is *basic literacy for patients and doctors*. [117]

- Absent NNT and NNH information – or a similar metric – you simply can't make wise, well informed medication decisions.

- Do you agree with Dr. Newman?

I previously offered an alternative metric, the 'out of 100 people like me' series of questions. Now you have 2 options.

Use whichever you find most appealing when you consider medications, treatments and preventive services.

But use one of them.

And always discuss your research and concerns with your doctor.

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[116] Dr. Nortin Hadler, Worried Sick, page 223

[117] Dr. David Newman, Hippocrates' Shadow, page 217

Questions an ethical broker would introduce about medications
When do I stop taking this medication?

Medication guidelines – especially for preventive meds – typically detail when to *start* taking the drug, but not as often when to *stop* taking it. Your underlying medical condition may change over time due to diet, exercise, stress levels, other medications, aging, environmental conditions or behavioral changes. Two potential ways to phrase this question:

- When do I stop taking this medication? **Or**
- How will I know if my condition has changed sufficiently to stop needing this medication?

Feel free to ask about any medication that does not have a clear end point.

You can follow up with *'Are there any long term studies about the effects of this medication?'*

Questions an ethical broker would introduce about medications
Are there any long term studies about this medication?

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?

You and your doctor may need to estimate, since the exact data may be unavailable. Beware of taking a drug for the rest of your life - maybe 30 or 40 years - if it's only been tested for 1 or 2. We simply may not know the long term effects, both positive and negative.

Conclusion

Ethical brokers who ‘do their fellow a favor’ can help their subscribers enjoy better healthcare outcomes at lower costs than brokers who ‘let the buyer beware’.

We have shown in this course, some ways to act ethically. They’re not always obvious or easy. In fact, ethical behavior often actually runs counter to standard operative procedures in many agencies.

But we hope the reader now has a greater appreciation for the benefits of ethical behavior both to the client and to the broker. In the long run, both benefit from ethical broker behavior.