It's April of 2007, and Jon Corzine, the Governor of New Jersey, is in this horrific car accident. He's in the right front passenger seat of this SUV when it crashes on the Garden State Parkway. He's transported to a New Jersey trauma center with multiple broken bones and multiple **lacerations**. He needs immediate surgery, seven units of blood, a mechanical ventilator to help him breathe and several more operations along the way. It's amazing he survived. But perhaps even more amazing, he was not wearing a seat belt. And, in fact, he never wore a seat belt, and the New Jersey state troopers who used to drive Governor Corzine around used to beg him to wear a seat belt, but he didn't do it. Now, before Corzine was Governor of New Jersey, he was the US Senator from New Jersey, and before that, he was the CEO of Goldman Sachs, responsible for taking Goldman Sachs public, making hundreds of millions of dollars. Now, no matter what you think of Jon Corzine politically or how he made his money, nobody would say that he was stupid. But there he was, an **unrestrained** passenger in a car accident, at a time when every American knows that seat belts save lives. This single story reflects a fundamental weakness in our approach to improving health behavior. Nearly everything we tell doctors and everything we tell patients is based on the idea that we behave rationally. If you give me information, I will process that information in my head, and my behavior will change as a result. Do you think Jon Corzine didn't know that seat belts save lives? Do you think he, like, just didn't get the **memo**? (Laughter) Jon Corzine did not have a knowledge **deficit**, he had a behavior deficit. It's not that he didn't know better. He knew better. It's that he didn't do better. Instead, I think the mind is **a high-resistance pathway**. Changing someone's mind with information is hard enough. Changing their behavior with information is harder still. The only way we're going to make substantial improvements in health and health care is to make substantial improvements in the behavior of health and health care. If you hit my patellar tendon with a reflex hammer, my leg is going to jerk forward, and it's going to jerk forward a lot faster and a lot more predictably than if I had to think about it myself. It's a reflex. We need to look for the equivalent behavioral reflexes and **hitch** our health care wagon to those. Turns out, though, that most conventional approaches to human motivation are based on the idea of education. We assume that if people don't behave as they should, it's because they didn't know any better. "If only people knew that smoking was dangerous, they wouldn't smoke." Or, we think about economics. The assumption there is that we're all constantly calculating the costs and benefits of every one of our actions and optimizing that to make the perfectly right, rational decision. If that were true, then all we need to do is to find the perfect payment system for doctors or the perfect co-payments and **deductibles** for patients, and everything would work out. A better approach lies in behavioral economics. Behavioral economists recognize that we are irrational. Our decisions are based on emotion, or they're sensitive to framing or to social context. We don't always do what's in our own long-term best interests. But the key contribution to behavioral economics is not in recognizing that we are irrational; it's recognizing that we are irrational in highly predictable ways. In fact, it's the predictability of our psychological **foibles** that allows us to design strategies to overcome them. **Forewarned is forearmed**. In fact, behavioral economists often use precisely the same behavioral reflexes that get us into trouble and turn them around to help us, rather than to hurt us. We see irrationality play out in something called "**present bias**," where the outcomes in front of us are much more motivating than even more important outcomes far in the future. If I'm on a diet -- and I'm always on a diet -- (Laughter) and someone offers me a **luscious-looking** piece of chocolate cake, I know I should not eat that chocolate cake. That chocolate cake will land on that part of my body -- permanently -- where that kind of food naturally settles. But the chocolate cake looks so good and delicious, and it's right in front of me, and the diet can wait 'til tomorrow. I used to love the comedian Steven Wright. He would have these Zen-like **quips.** My favorite one was this: "Hard work pays off in the future, but laziness pays off right now." (Laughter) And patients also have present bias. If you have high blood pressure, even if you would desperately like to avoid a stroke, and you know that taking your **antihypertensive** medications is one of the best ways to reduce that risk, the stroke you avoid is far in the future and taking medications is right now. Almost half of the patients who are prescribed high blood pressure pills stop taking them within a year. Think of how many lives we could save if we could solve just that one problem. We also tend to overestimate the value of small probabilities. This actually explains why state lotteries are so popular, even though they return pennies on the dollar. Now, some of you may buy lottery tickets -- it's fun, there's the chance you might strike it rich ... But let's face it: this would be a horrible way to invest your retirement savings. I once saw a bumper sticker -- I am not making this up -- that said, "State lotteries are a special tax on people who can't do math." (Laughter) It's not that we can't do the math, it's that we can't feel the math. And we also pay much too much attention to regret. We all hate the feeling of missing out. So, actually, there was this recent lottery, a mega-jackpot lottery, that had a huge payoff, something like over a billion dollars. And everyone in my office is pooling money to buy lottery tickets, and I'm not having any of this. There I am, like, **swaggering** around the office, "Lotteries are a special tax on people who can't do math." (Laughter) And then it hits me: uh oh. What if they win? (Laughter) I'm the only one who shows up at work the next day. (Laughter) Now, it's not that I didn't want my colleagues to win. I just didn't want them to win without me. Now, it would have been easier if I had just taken my 20-dollar bill and put it into the office shredder, and the results would have been the same. Even though I knew I shouldn't participate, I handed over my $20 bill, and I never saw it again. (Laughter) We've done a bunch of experiments with patients in which we give them these electronic pill bottles so we can tell whether they're taking their medication or not. And we reward them with a lottery. They get prizes. But they only get prizes if they had taken their medication the day before. If not, they get a message that says something like, "You would have won a hundred dollars, but you didn't take your medicine yesterday, so you don't get it." Well, it turns out, patients hate that. They hate the sense of missing out, and because they can anticipate that feeling of regret and they'd like to avoid it, they're much more likely to take their medications. **Harnessing** that sense of hating regret works. And it leads to the more general point, which is: once you recognize how people are irrational, you're in a much better position to help them. Now, this kind of irrationality works out even in men's restrooms. So, for those of you who don't frequent urinals, let me break this down for you. (Laughter) There is pee all over the floor. (Laughter) And it turns out that you can solve this problem by etching the image of a fly in the back of the urinal. (Laughter) (Applause) And it makes perfect sense. (Laughter) If I see a fly, I'm gonna get that fly. (Laughter) That fly is going down. (Laughter) Now, this naturally begs the question that if men can aim, why were they peeing on the floor in the first place? In fact, if they were going to pee on the floor, why pee in front of the urinal? You could pee anywhere. (Laughter) And the same thing works in health care. We had a problem in our hospital in which the physicians were prescribing brand-name drugs when a generic drug was available. Each one of the lines on this graph represents a different drug. And they're listed according to how often they're prescribed as generic medications. Those are the top are prescribed as generics 100 percent of the time. Those down at the bottom are prescribed as generics less than 20 percent of the time. And we'd have meetings with clinicians and all sorts of education sessions, and nothing worked -- all the lines are pretty much horizontal. Until, someone installed a little piece of software in the electronic health record that defaulted the prescriptions to generic medications instead of the brand-name drugs. Now, it doesn't take a **statistician** to see that this problem **was solved overnight**, and it has stayed solved ever since. In fact, in the two and a half years since this program started, our hospital has saved 32 million dollars. Let me say that again: 32 million dollars. And all we did was make it easier for the doctors to do what they fundamentally wanted to do all along. It also works to play into people's notions of loss. We did this with a contest to help people walk more. We wanted everyone to walk at least 7,000 steps, and we measured their step count with the **accelerometer** on their cell phone. Group A, the control group, just got told whether they had walked 7,000 steps or not. Group B got a financial incentive. We gave them $1.40 for every day they walked 7,000 steps. Group C got the same financial incentive, but it was framed as a loss rather than a gain: $1.40 a day is 42 dollars a month, so we gave these participants 42 dollars at the beginning of each month in a virtual account that they could see, and we took away $1.40 for every day they didn't walk 7,000 steps. Now, an economist would say that those two financial incentives are the same. For every day you walk 7,000 steps, you're $1.40 richer. But a behavioral economist would say that they're different, because we're much more motivated to avoid a $1.40 loss than we are motivated to achieve a $1.40 gain. And that's exactly what happened. Those in the group that received $1.40 for every day they walked 7,000 steps were no more likely to meet their goal than the control group. The financial incentive didn't work. But those who had a loss-framed incentive met their goal 50 percent more of the time. It doesn't make economic sense, but it makes psychological sense, because **losses loom larger than gains**. And now we're using **loss-framed incentives** to help patients walk more, lose weight and take their medications. Money can be a motivator. We all know that. But it's far more influential when it's paired with psychology. And money, of course, has its own disadvantages. My favorite example of this involves a daycare program. The greatest sin you can commit in daycare is picking up your kids late. No one is happy. Your kids are crying because you don't love them. (Laughter) The teachers are unhappy because they leave work late. And you feel terribly guilty. This daycare program in Israel decided they wanted to stop this problem, and they did something that many daycare programs in the US do, which is they installed a fine for late pickups. And the fine they chose was 10 shekels, which is about three bucks. And guess what happened? Late pickups increased. And if you think about it, it makes perfect sense. What a deal! For 10 shekels -- (Laughter) you can keep my kids all night! (Laughter) They took a perfectly strong intrinsic motivation not to be late, and they cheapened it. What's worse, when they realized their mistake and they took away the financial incentive, the late pickups still stayed at the high level. They had already poisoned the social contract. Health care is full of strong intrinsic motivations. We have doctors and patients who already want to do the right thing. Financial incentives can help, but we shouldn't expect money in health care to do all of the heavy lifting. Instead, perhaps the most powerful influencers of health behavior are our social interactions. Social engagement works in health care, and it works in two directions. First, we fundamentally care what others think of us. And so one of the most powerful ways to change our behavior is to **make our activities witnessable to others**. We behave differently when we're being observed than when we're not. I've been to some restaurants that don't have sinks in the bathrooms. Instead, when you step out, the sink is outside in the main part of the restaurant, where everyone can see whether you wash your hands or not. Now, I don't know for sure, but I am convinced that handwashing is much greater in those particular settings. We are always on our best behavior when we're being observed. In fact, there was this amazing study that was done in an intensive care unit in a Florida hospital. The handwashing rates were very low, which is dangerous, of course, because it can **spread infection**. And so some researchers pasted a picture of someone's eyes over the sink. It wasn't a real person, it was just a photograph. In fact, it wasn't even their whole face, it was just their eyes looking at you. (Laughter) Handwashing rates more than doubled. It seems we care so much what other people think of us that our behavior improves even if **we merely imagine** that we're being observed. And not only do we care what others think of us, we fundamentally model our behaviors on what we see other people do. And it all comes back to seat belts. When I was a kid, I used to love the "Batman" TV series with Adam West. Everything that Batman and Robin did was so cool, and, of course, the Batmobile was the coolest thing of all. Now, that show aired from 1966 to 1968, and at that time, seat belts were optional accessories in cars. But the producers of that show did something really important. When Batman and Robin got in the Batmobile, the camera would focus on their laps, and you would see Batman and Robin put on their seat belts. Now, if Batman and Robin put on their seat belts, you can bet that I was going to wear my seat belt, too. I bet that show saved thousands of lives. And again, it works in health care, too. Doctors use antibiotics more appropriately when they see how other doctors use them. So many activities in health care are hidden, they're unwitnessed, but doctors are social animals, and they perform better when they see what other doctors do. So social influence works in health care. So does tying it to **notions of regret** or **to loss aversion**. We would never think of using these tools if we thought that everyone was rational all the time. Now, just to be clear: I am not **condemning rationality**. I mean, that really would be irrational. But we all know that it's the nonrational parts of our minds where we get courage, creativity, inspiration and everything else that sparks passion. And we know something else, too. We know that we can be much more effective at improving health behavior if we work with the irrational parts of our nature instead of ignoring them or fighting against them. When it comes to health care, understanding our irrationality is just another tool in our toolbox. And harnessing that irrationality -- that may be the most rational move of all. Thank you. (Applause)