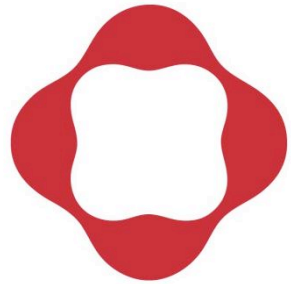
Nutrition Science Initiative

Introduction and overview

September 2012



NuSI
Nutrition Science Initiative

Our mission

The Nutrition Science Initiative is a nonprofit organization with the mission of reducing the economic and social burden of obesity and obesity-related chronic disease by improving the quality of science in nutrition and obesity research.

We believe that this research will lead to significant improvements in the quality of nutritional guidance, dietary recommendations, and policies. With these improvements environmental conditions can be improved significantly to stop this epidemic and reverse the rising rates of obesity, diabetes, and their related diseases.

The foundation of our dietary guidance rests on inconclusive science, and may be incorrect

"We don't have the luxury of time to find the truth before making policy…"

The McGovern Report, 1977

(U.S. Senate Select Committee on Nutrition and Human Needs)

Our thesis

If people had the correct information – based on rigorously produced scientific evidence – about which foods predisposed them to obesity and its related diseases, most would make the correct choices and lead healthier and happier lives.

Why this problem is absolutely solvable

Just 50 years ago, a small fraction of Americans were obese or had diabetes.

Hence, we know it is possible for our population to be healthy.

Something changed dramatically over the past 50 years, and today we are more obese than ever before.

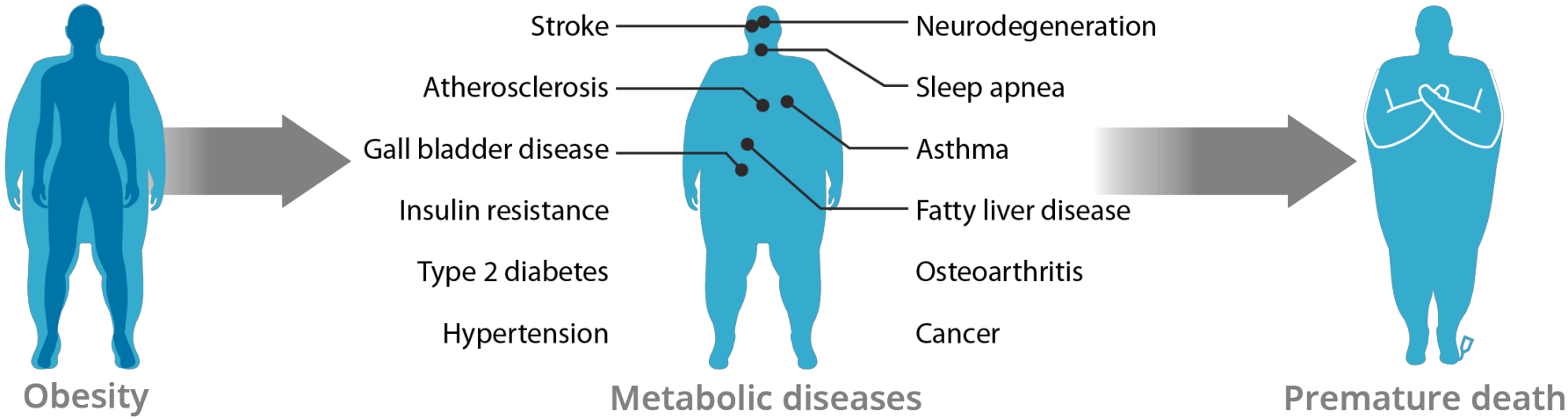
How did current dietary guidelines come to exist?

Research in nutrition, obesity and chronic disease has not lived up to the scientific standards necessary to produce reliable knowledge about these subjects.

1. **Authority and consensus of opinion are treated as scientific fact even in the absence of rigorous experimentation.**
2. **Observational studies, which only determine correlation, have been used to assign cause and effect when the associations produced by these observational studies contain no inherent causal information.**
3. **Negative evidence (e.g., evidence not supporting current hypotheses) is ignored or considered less relevant, even when this negative evidence is produced by relatively well-controlled experimental trials (e.g., the half-billion dollar Women's Health Initiative).**
4. **Poorly controlled experiments are considered sufficient basis on which to form dietary recommendations on the belief that they are the best science can offer, not because they are inherently rigorous enough to establish reliable knowledge.**

Obesity plays a major role in the development of many diseases, often through the development of metabolic syndrome

Obesity-related diseases



Despite following current dietary recommendations – for example, reducing fat intake – Americans are getting more and more obese

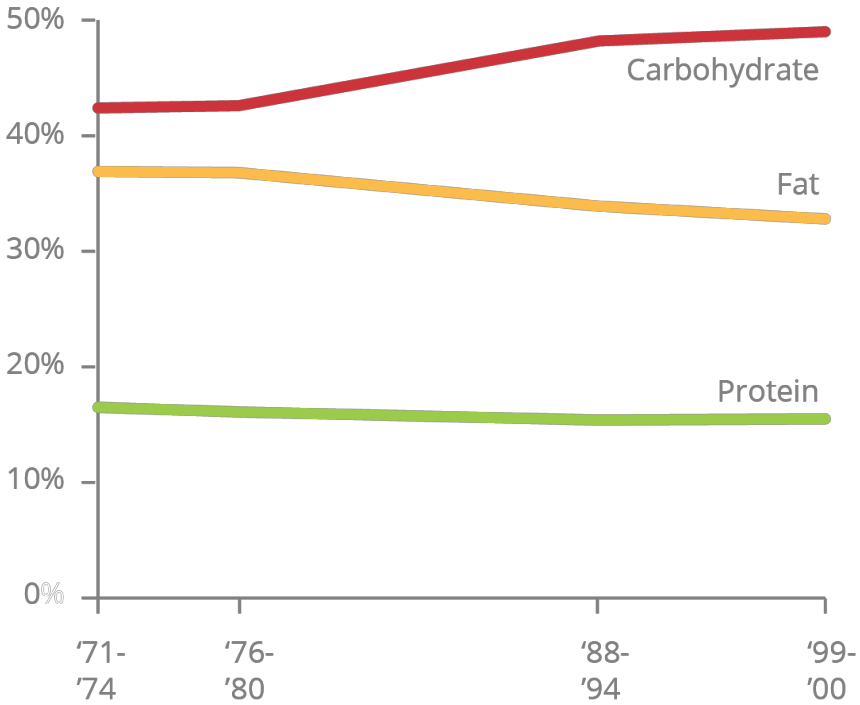
Food consumption

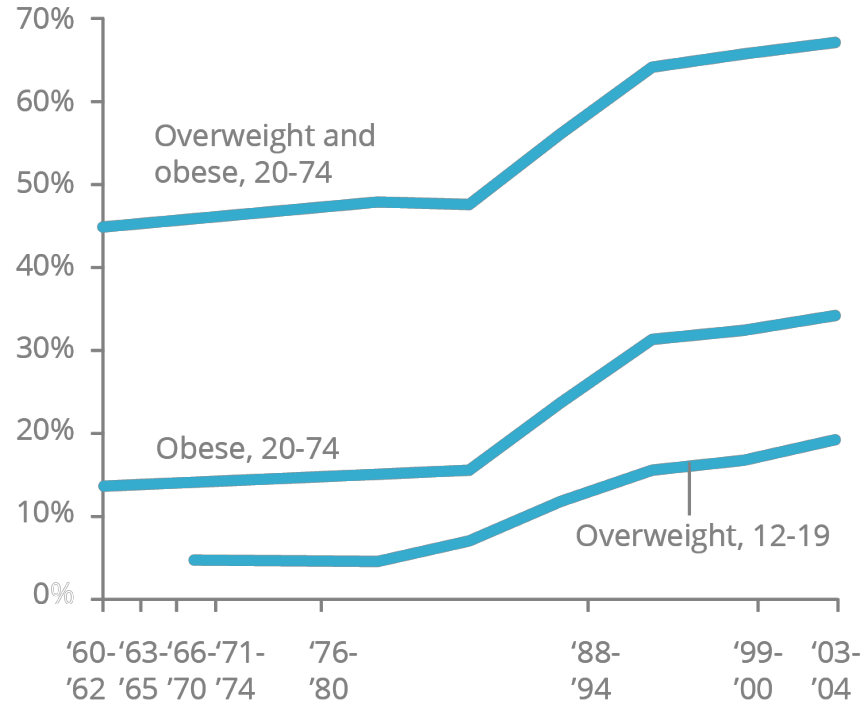
Percent of type of food consumed in the U.S. since 1970

vs.

Obesity rates

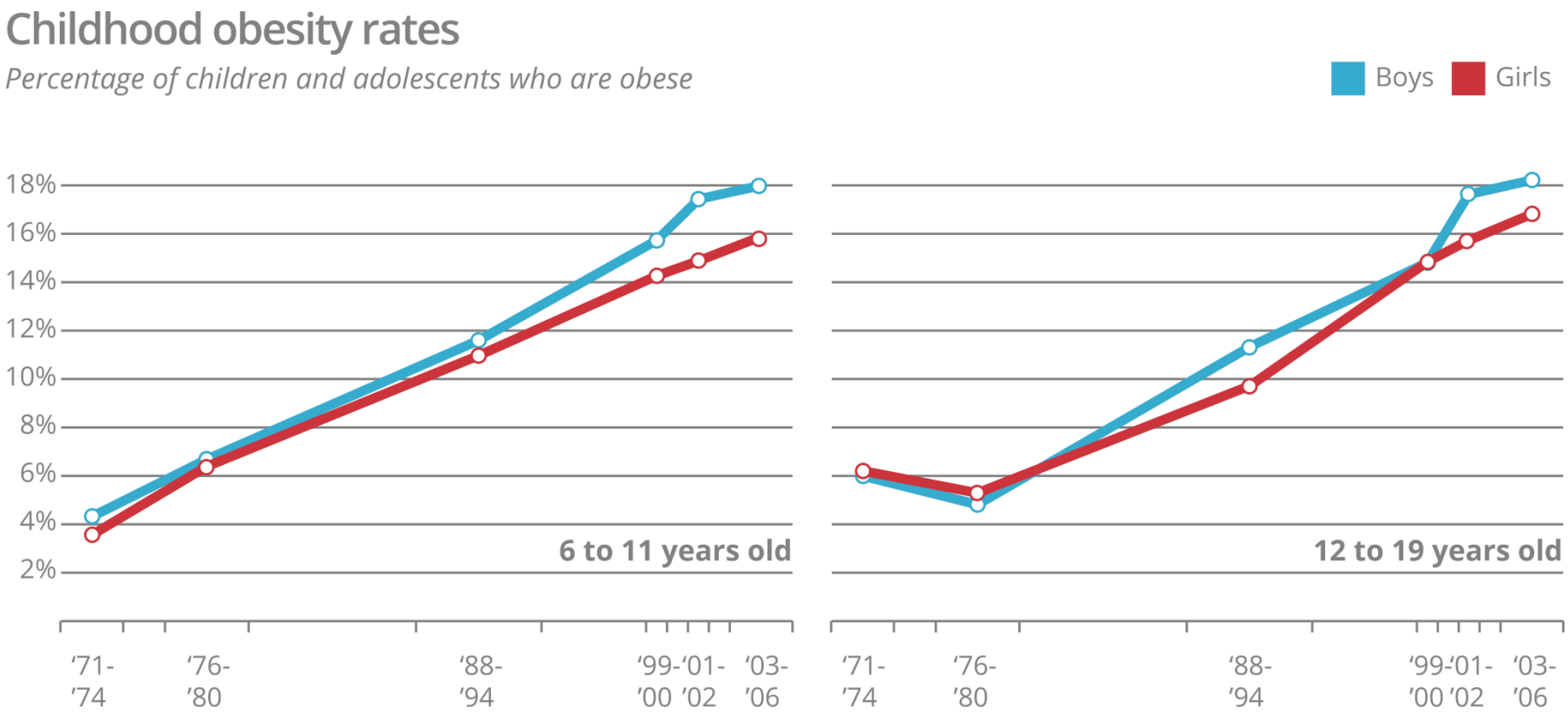
Overweight/obesity by age group in the U.S. since 1960





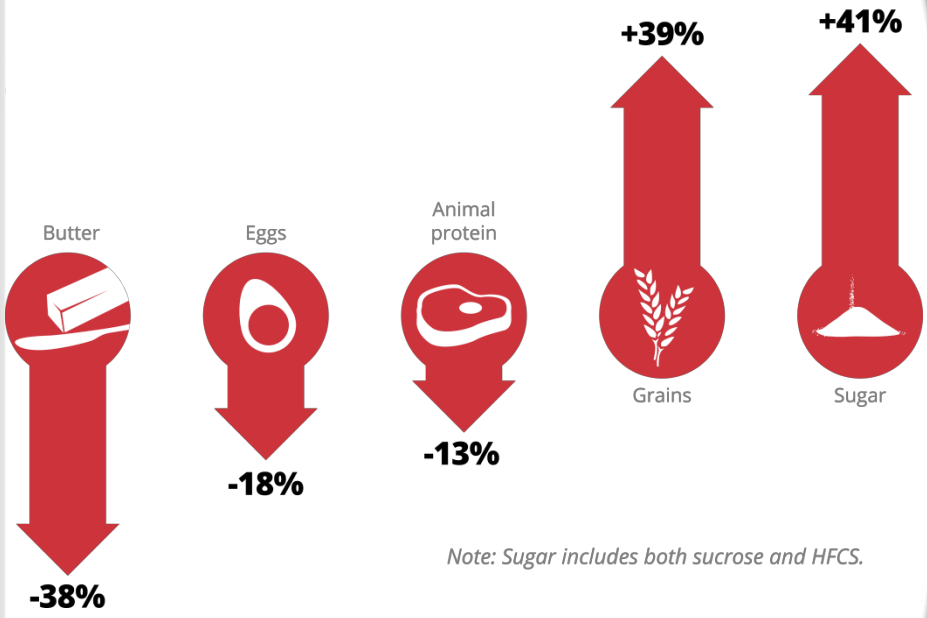
Source: Center for Disease Control and Prevention, 2006; NHANES, 2006.

Obesity rates in children are rising at an unacceptable rate



Source: NHANES.

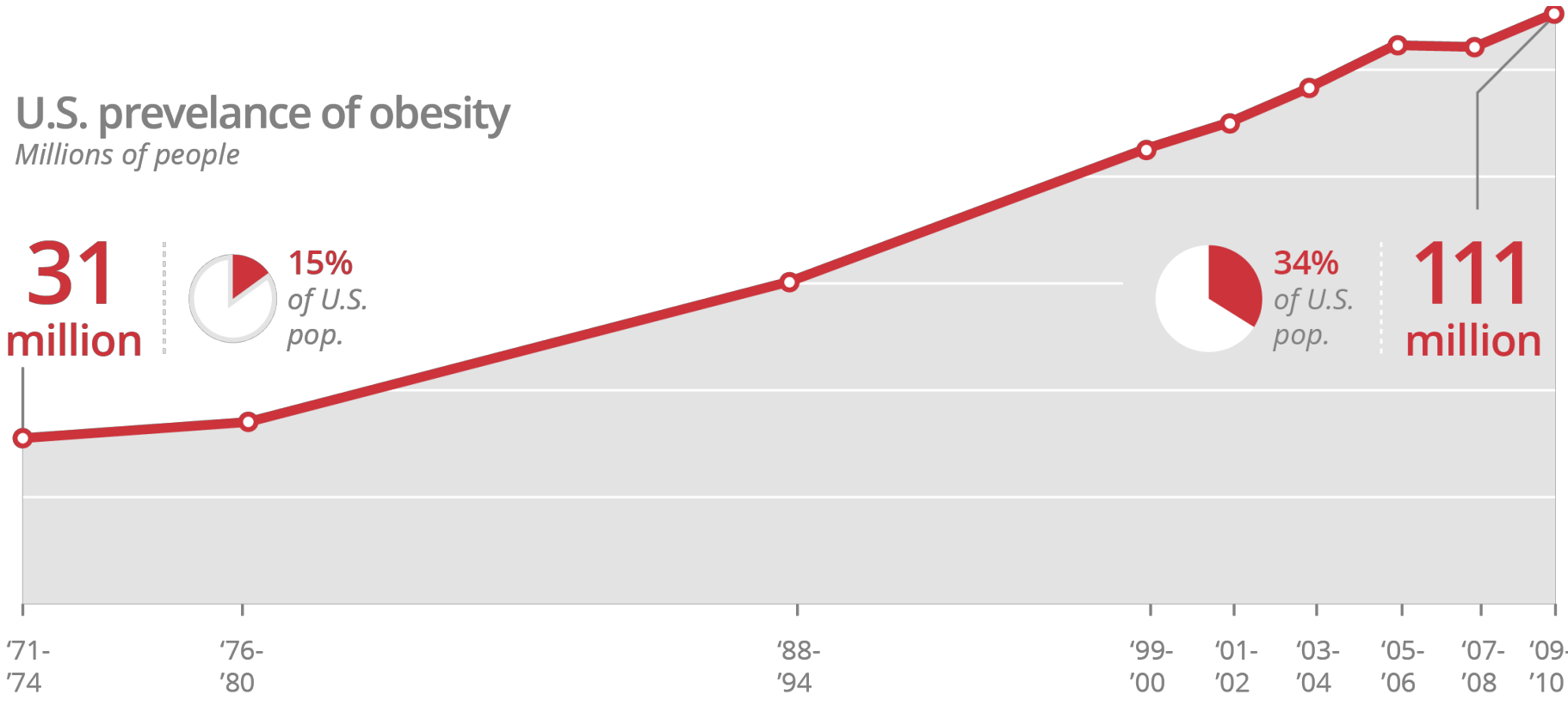
Current dietary trends and food policies may be responsible for the epidemics of diabetes and obesity



- Forty years ago the United States adopted **policies and guidelines based on beliefs and preconceptions rather than robust scientific evidence.**
- The rate of obesity in the United States increased from **15% in 1970 to 34% today**; the rate of diabetes has increased from **2% to 8%** in this 40-year period.
- In particular**, every demographic** in the United States has seen a significant rise in their rate of obesity during this 40-year period – perhaps **most alarming is the increase in children obesity rates.**
- The epidemics of obesity and diabetes – which exacerbate many chronic diseases afflicting Americans – **coincide with national nutritional recommendations based on poor scientific evidence.**

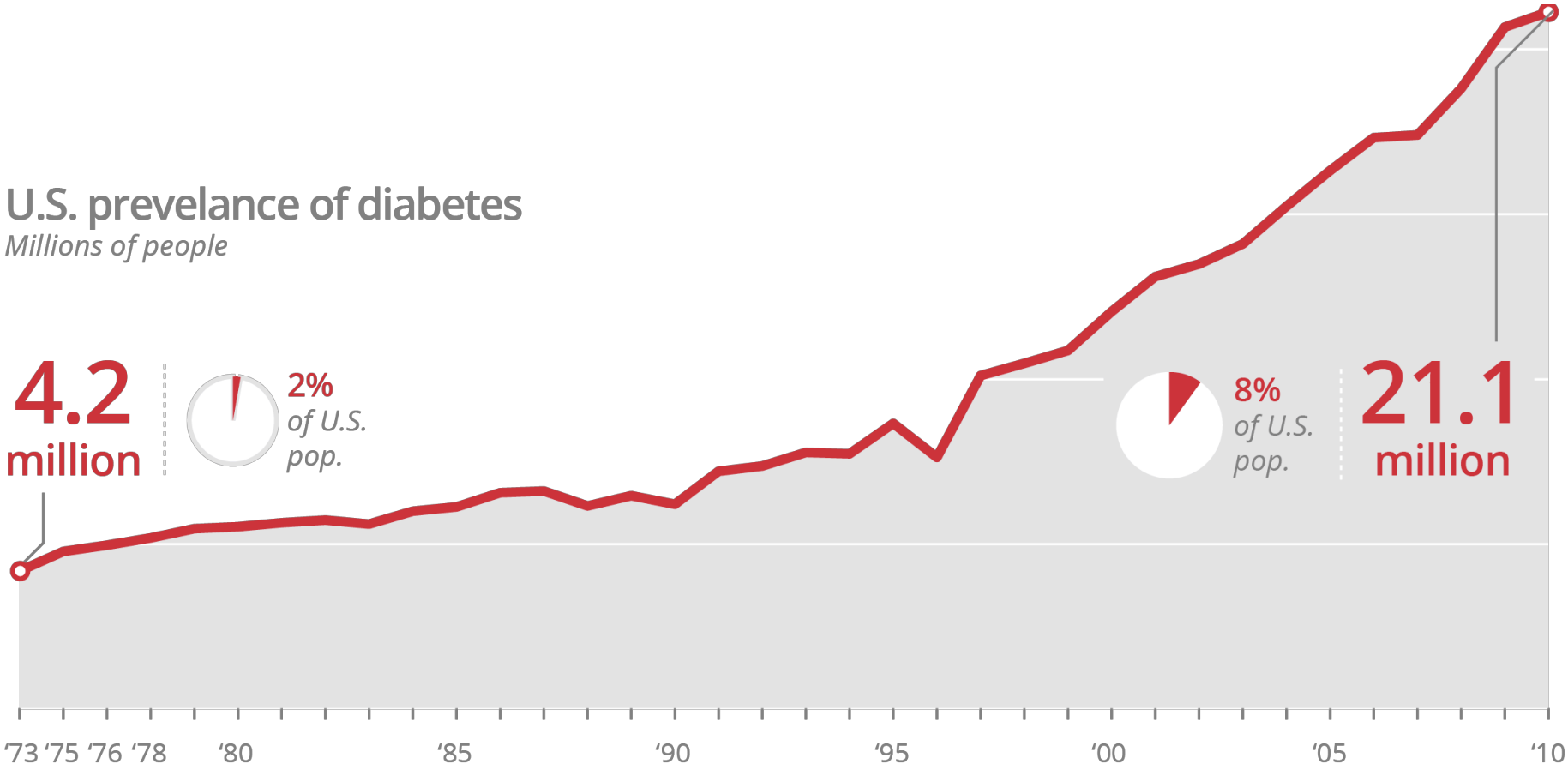
Source: U.S. Food and Agricultural Organization, NHANES.

The U.S. prevalence of obesity is rising



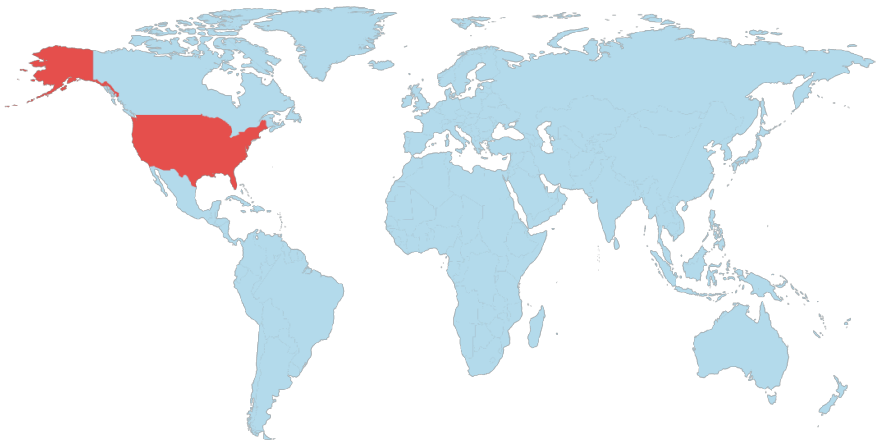
Source: Center for Disease Control and Prevention.

And with it, so too is the U.S. prevalence of diabetes

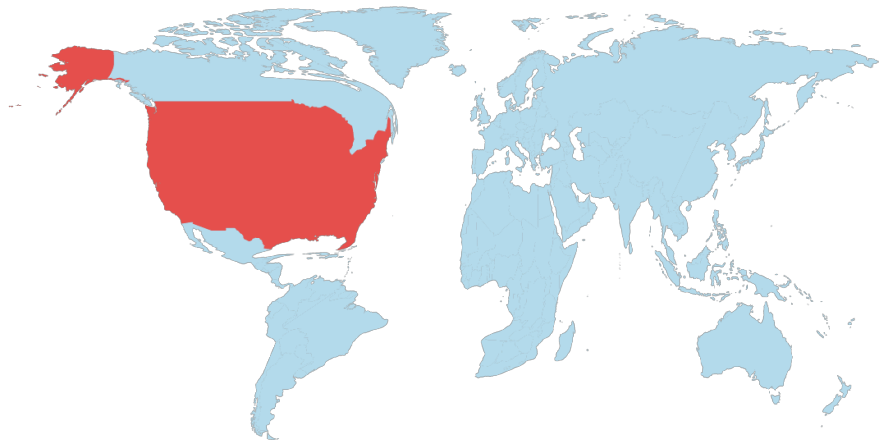


Source: Center for Disease Control and Prevention.

Americans make up a disproportionate amount of worldwide obesity



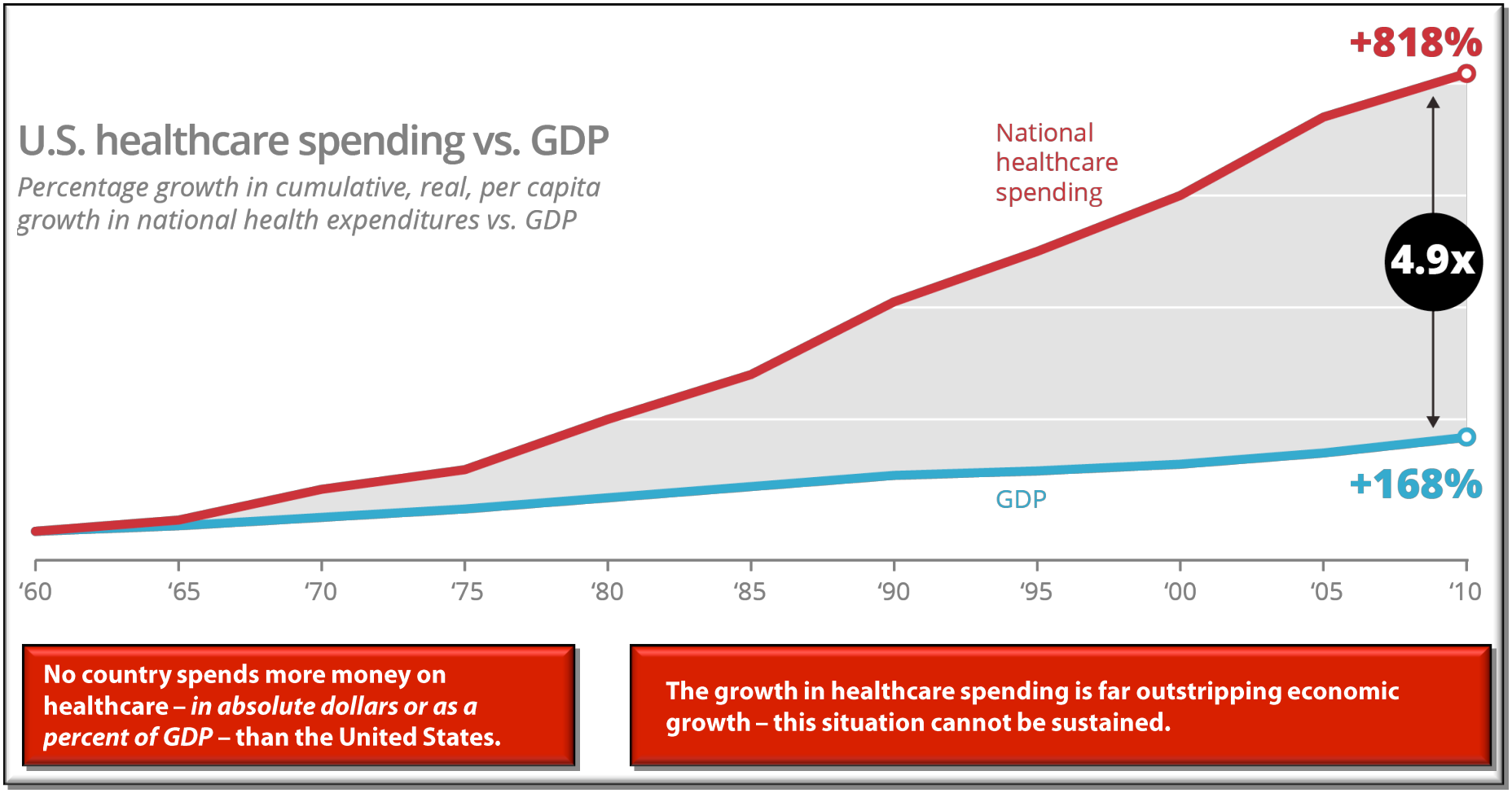
The U.S. carries 5% of the world's population...



...yet carries 33% of the world's excess weight

Source: BMC Public Health 2012, 12:439.

It is not clear how long our economy can continue to support the disproportionate growth in health care spending, at least partially driven by this problem



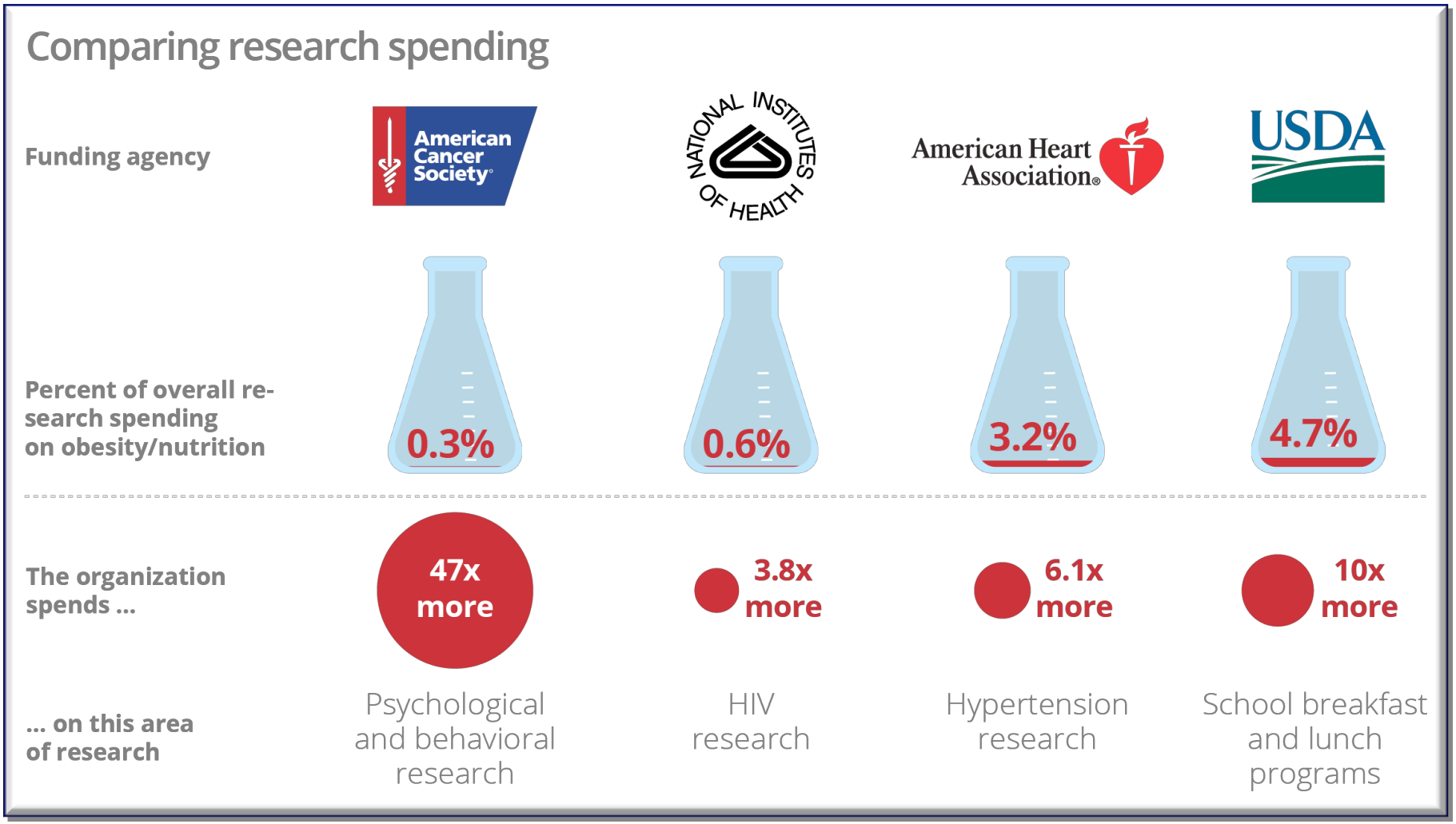
No country spends more money on healthcare – *in absolute dollars or as a percent of GDP* – than the United States.

The growth in healthcare spending is far outstripping economic growth – this situation cannot be sustained.

Source: Centers for Medicare & Medicaid Services; McKinsey & Company report on health care costs, 2012.

The leading organizations are not prioritizing obesity and nutrition research, perhaps because they believe the solution is obvious – *eat less and exercise more*

Comparing research spending



Source: Organization budget information for 2010 (except NIH, which is 2011e).

Why NuSI?

The current approach to the obesity problem – telling people to eat less and exercise more – is not working.

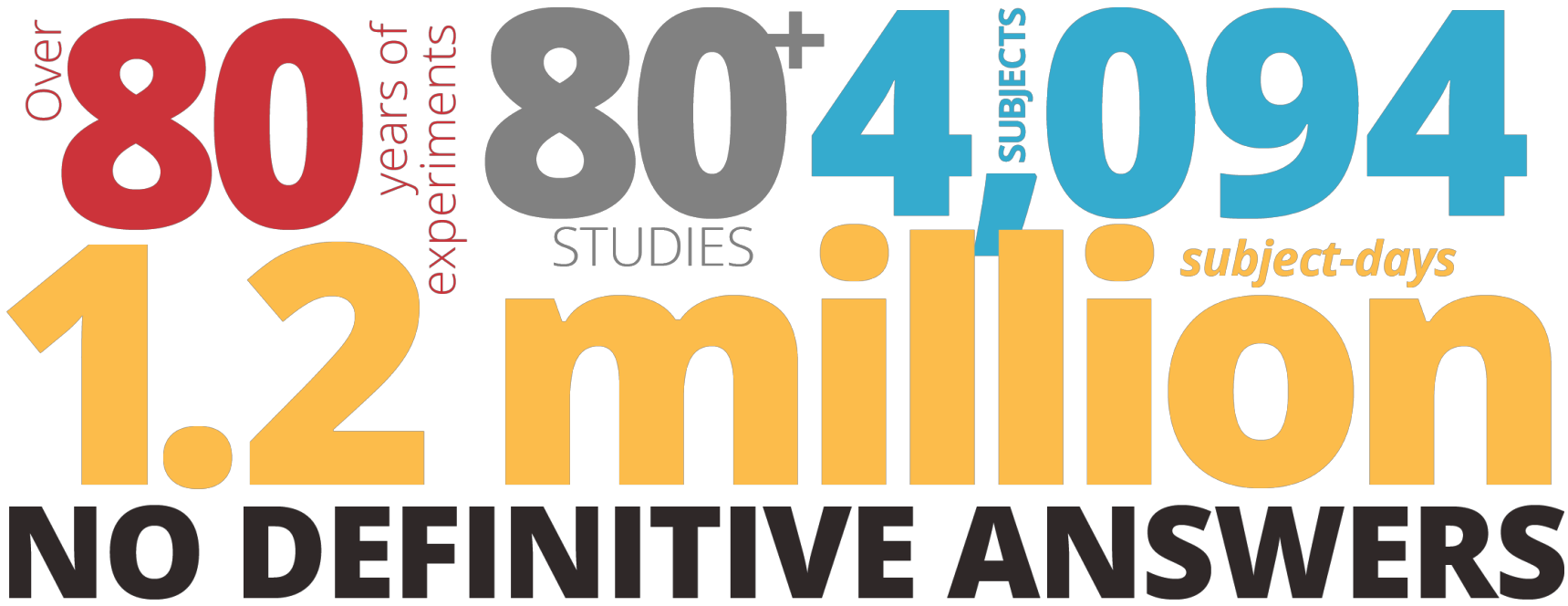
We need a new approach.

NuSI is unencumbered by existing recommendations, conventional wisdom, or bureaucracy.

Because of this NuSI is able to execute quickly and efficiently.

We are ready to take back control of our health and fund this initiative to find out, once and for all, what we need to eat to be healthy.

What has been done to date?

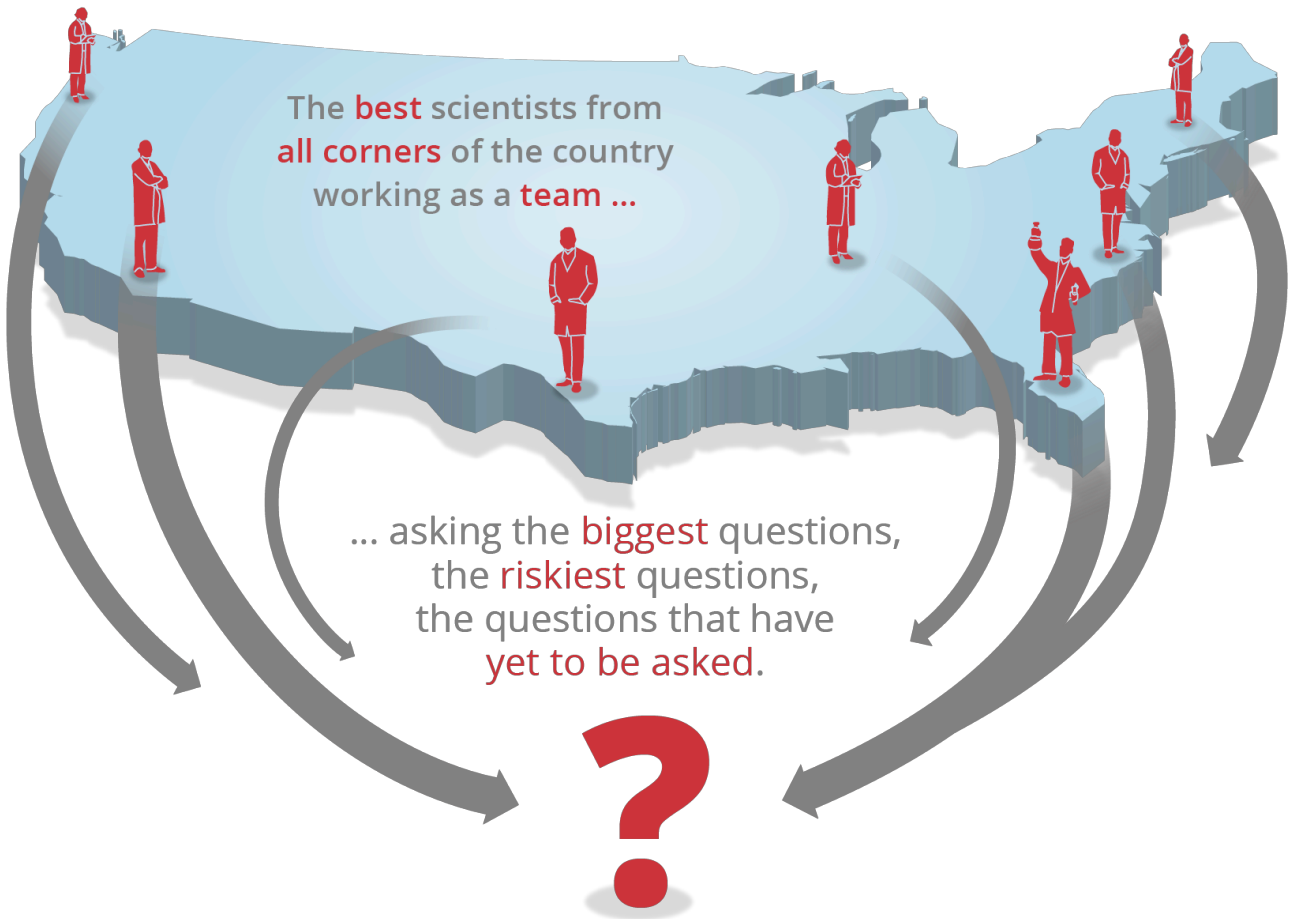


By removing the constraints of previous attempts to answer this question, NuSI will facilitate studies to resolve this problem

Source: NuSI literature review, 2012.

NuSI will deploy economic resources and strategic insight to maximum effect

NuSI will create a Manhattan Project-like effort to solve this problem



It's never been done before. **Until now.**

How solvable is this problem? Consider the cost of developing just a single drug for clinical use

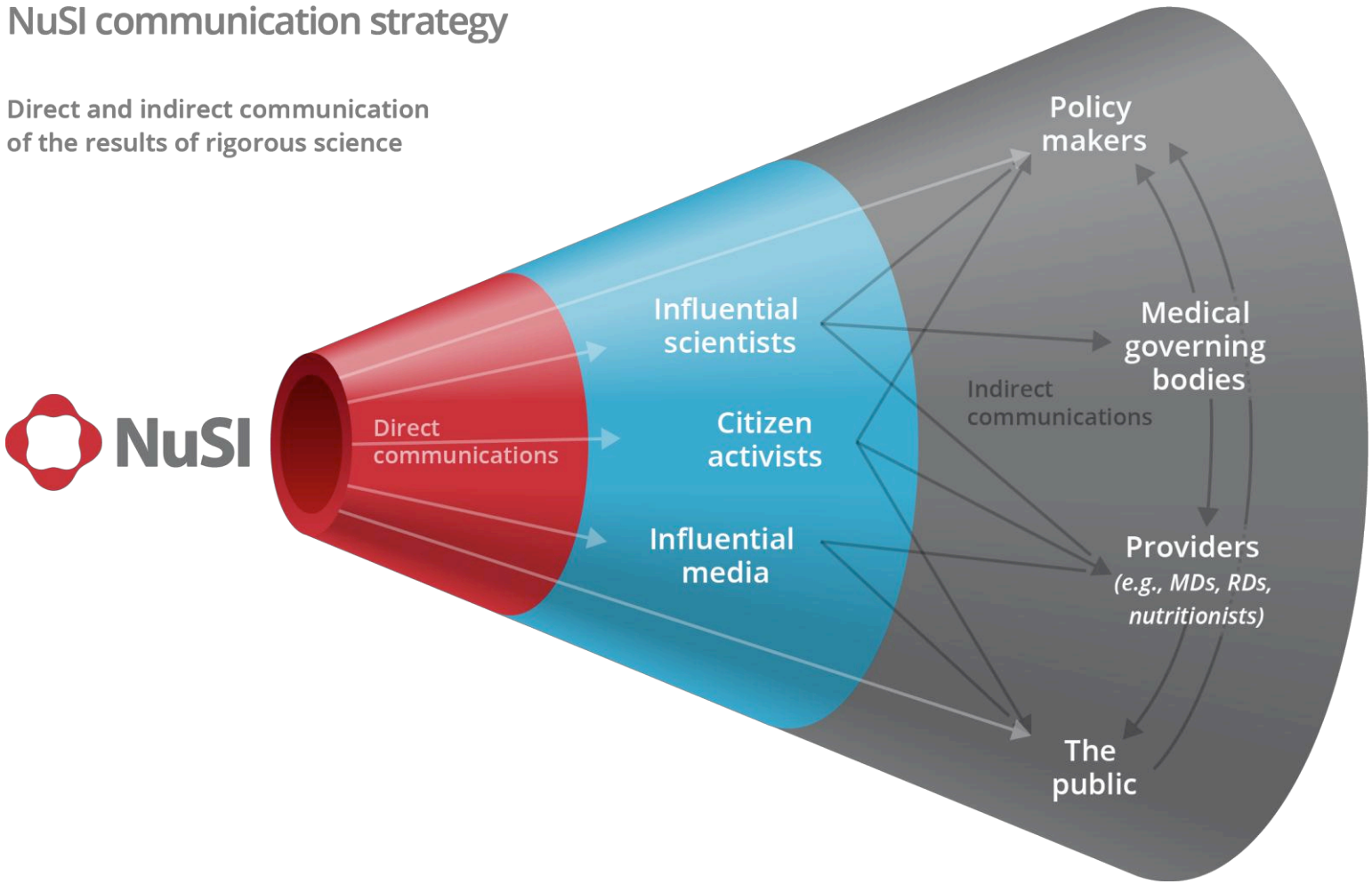
Each year the FDA approves an average of **44** drugs → It takes an average of **15** years → and costs an average of **$873** million → to produce **1** drug

That drug may benefit **10%** of the population → and benefit them **1x** in their life

How much time and money should we invest to find out once and for all what we need to eat to live healthy lives?

Source: Food and Drug Administration; CenterWatch; Nature Reviews, drug discovery, March 2010 (supplemental information).

While scientific resolution is necessary, it alone is not sufficient; NuSI will also execute a sophisticated communications strategy to bring about societal change



If the cause of, and therefore the correct treatment for, obesity were known, the United States could look very different by 2025

The prevalence of obesity could be reduced to 15%, down from 35% today, and the prevalence of diabetes reduced to 2%, down from over 8% today.

Healthcare spending could be reduced to less than 10% of GDP, down from nearly 18% today.

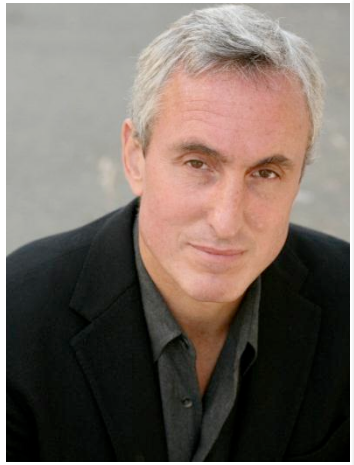
When an overweight or diabetic patient sees his doctor, he can be told specifically which foods to avoid, rather than to "eat less" or "exercise more."

The infrastructure of food could be transformed such that "default" eating choices could be healthy choices.

The debate around ideal nutrition could be transformed from one of anecdote and opinion into one of scientific evidence and fact.

Founders

Gary Taubes



Gary is a science and health journalist and currently a Robert Wood Johnson Foundation Independent Investigator in Health Policy Research at the U.C. Berkeley School of Public Health. He is the author of *Why We Get Fat* and *Good Calories, Bad Calories.* He has been a contributing correspondent for the journal *Science* since 1993, and has contributed articles as a freelancer to *The Atlantic Monthly*, *The New York Times Magazine*, *Esquire, Slate,* and numerous other publications. His 1997 book, *Bad Science* was a *New York Times* Notable Book and a finalist for the *Los Angeles Times* Book Awards. Gary is the only print journalist to be a three-time winner of the National Association of Science Writers science-in-society journalism award.

Gary received his B.S. in physics from Harvard University, his M.S. in engineering from Stanford University, and his M.S. in journalism from Columbia University.

Peter Attia, M.D.

Peter is a physician and former business consultant. At McKinsey & Company he was a member of both the corporate risk and healthcare practices. Prior to McKinsey, Peter spent five years at the Johns Hopkins Hospital as a general surgery resident, where he was the recipient of several prestigious awards and the author of a comprehensive review of general surgery. Peter also spent two years at the National Institutes of Health as a surgical oncology fellow at the National Cancer Institute under Dr. Steve Rosenberg, where his research focused on the role of regulatory T cells in cancer regression and other immune-based therapies for cancer.

Peter earned his M.D. from Stanford University and holds a B.Sc. in mechanical engineering and applied mathematics from Queen's University in Kingston, Ontario, Canada, where he also taught and helped design the calculus curriculum.

Scientific Advisory Board

David Harlan, M.D.

David is the William and Doris Krupp Professor of Medicine and Chief of the Diabetes Division at the University of Massachusetts School of Medicine, where he also serves as Co-Director of the Diabetes Center of Excellence and Director of the Diabetes Endocrinology Research Center. From 2007 to 2010, he served as head of the Diabetes, Endocrinology, & Metabolic Diseases Branch of the NIDDK at the NIH. David has received numerous honors and awards, including the U.S. Navy Legion of Merit and the U.S. Public Health Service Physician Researcher of the Year Award. David earned his B.S. from the University of Michigan and his M.D. from Duke University. He continued his postgraduate training at Duke, where he was an intern, resident, and fellow in endocrinology.

Mitchel Lazar, M.D., Ph.D.

Mitch is the Sylvan H. Eisman Professor of Medicine and Genetics and the Director of the Institute for Diabetes, Obesity, and Metabolism at the University of Pennsylvania. His current research focus is on the epigenomic regulation of gene expression and metabolism. He discovered *Rev-erba* and the epigenomic mechanisms by which it represses gene transcription. Mitch has been elected to the American Society for Clinical Investigation and the Association of American Physicians, the Institute of Medicine of the National Academy of Sciences, and to the American Academy of Arts and Sciences. He has received numerous awards, including two NIH Merit Awards. Mitch received his B.S. in Chemistry from MIT, and his Ph.D. and M.D. from Stanford University. He trained at Brigham and Women's Hospital in Boston and the MGH.

Kevin Schulman, M.D.

Kevin is a professor of Medicine and Business Administration at Duke University, where he also serves as the director of the Center for Clinical and Genetic Economics and as a director of the Duke Clinical Research Institute. His research interests include health services research and policy, health economics and economic evaluation, and medical decision making. Kevin's other university affiliations include the Trent Center for Bioethics, the Duke Translational Research Institute Pilot Project Advisory Committee, and the Duke Global Health Institute. He has published more than 350 papers and book chapters, and is an elected member of the American Society for Clinical Investigation. Kevin received his M.D. from the New York University and his MBA from the Wharton School. He trained at the University of Pennsylvania.

Allan Sniderman, M.D.

Allan is the Edwards Professor of Cardiology at McGill University and Director of the Cardiovascular Research at Royal Victoria Hospital in Montreal. His current research interests are in the regulation of plasma LDL and the advanced diagnostic algorithms to recognize and treat vascular disease. Allan has conducted a series of studies which identified the most common dyslipoproteinemia associated with coronary artery disease. Study of hyperTg hyperapB led to studies of the regulation of hepatic apoB secretion and the uptake and release of fatty acids by adipose tissue. He has conducted an extensive series of studies, which have demonstrated apoB superiority as a marker of the risk of vascular disease. Allan obtained his M.D. from the University of Toronto, did his clinical training at McGill University, and studied lipoprotein metabolism at UCSD.