

MAHA Will Not Happen Without a Paradigm Shift

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MAHA will not happen without a paradigm change: Defense medicine is that new paradigm.

Our healthcare system is beset with many problems. Most of them result from mistakes we have made along the way in building it. Albert Einstein said it plainly: *you cannot solve the problems created by one way of thinking without changing the way of thinking.*

That means changing the paradigm.

I was introduced to paradigms by Thomas Kuhn, whose book about scientific paradigms, *The Structure of Scientific Revolutions*, was published a year before I began my master's program in the history of science and ideas. Paradigms are not abstract theories—they are the mental models we all build in our brains to make sense of the world. They determine what we notice, what we ignore, and what we believe is possible. They shape our vision, and they also form our blind spots.

My first encounter with a paradigm blind spot came in medical school. Before medicine, in my master's program I learned about the famous dispute between Louis Pasteur and Claude Bernard over the causes of illness. Pasteur launched the germ theory, which won the day because it offered a simple, satisfying story: find the enemy microbe and kill it. That has been our paradigm. Bernard argued something more subtle and more uncomfortable—that the “soil,” the internal environment of the host where the microbe was planted, was equally responsible. That soil is *us*, and accepting that meant accepting some responsibility for keeping that environment healthy. So, the war metaphor won, and it became our paradigm; and Bernard, equally correct, and a critical model for today, became a blind spot.

For more than a century, we have lived inside that paradigm. We have focused on killing the microbes. We have built an entire medical system around the idea that microbes are the enemy. This held despite the new knowledge that we have trillions of commensal microbes living with and in us that contribute greatly to our health, development, and well-being, and that one of our biggest problems in infectious disease today is the resistant microbes that have found out how to get around the drugs we use to kill them.

We have overlooked something evolution teaches: every living organism—plants, animals, and microbes alike—survive because of defenses, adaptations, and cooperative relationships. Bernard's “soil” is the set of defenses we developed and inherited to stay healthy, and that works for both us and the microbes. Because our paradigm is wrong, we don't see them, but nature is full of them.

This is the foundation for everything that follows.

Our problems today are multiple, interconnected, and complex—and as Einstein warned, they were created by a paradigm that no longer works. First, we have a healthcare system with a vast chasm between what we pay for and what we get. That gap has not improved since 2001, when the Institute of Medicine published *Crossing the Quality Chasm*, calling for a new health system for the 21st century. We didn't cross it, and it's now a canyon.

Second, we are fighting a war with microbes that we are losing. Antimicrobial-resistant organisms now kill five million people annually, and that number is projected to double by 2050. This war traces directly back to

Pasteur's victory and the belief that microbes are the primary cause of illness. But nature doesn't work that way. Nature survives through adaptation, cooperation, and defense—not endless war. And nature has shown us how to end our losing war, but we don't see it—it's another blind spot.

If we want to fix our system and truly Make Americans Healthy Again, we must learn to see what our current paradigm hides. We must look at how our natural defenses actually maintain health. We must understand the defenses that evolution built into us, and how our environment and education shape them.

We'll get there. But before we dive into the details, let's pause and ask the question at the heart of this program:

Making America , not just Americans, Healthy Again—what would that actually take?

That shift in paradigm doesn't just involve medicine. It involves our systems—economic, political, and social—and the clues to fix them come from nature and wise educators who saw the deeper patterns long ago.

Nearly fifty years ago, Aaron Antonovsky described the foundations of *salutogenesis*—the conditions that allow people to move toward health rather than away from it. He found that healthy individuals share three qualities: a sense of control, a sense of understanding, and a sense of meaning. He gathered these into what he called a *sense of coherence*. His principles have been validated in European studies.

Years later, Elinor Ostrom identified these same elements in communities that successfully rescued their commons, their shared resources, from what Garrett Hardin termed the “tragedy of the commons”. That problem was caused most often by the more powerful agents in the community overusing and abusing its resources. The people using a damaged commons already possess an understanding of the problem. They gain meaning from sharing that understanding with others in their community. What they lack is control. And when control is restored to them—when power moves down to those who understand and can do something about it—the commons recovers.

These three elements—control, understanding, and meaning—are the foundation of any adaptive living system, be it an individual, a team, an animal, community, church, or nation. And the weakest of the three is control.

So the first step in Making America Healthy Again is finding ways to extend control by moving power down.

But this runs against the grain of our self-interested systems. Power rarely gives itself away. Physicians resist patient autonomy. Politicians ignore constituents who lack financial leverage. And our healthcare system is dominated by a hegemonic force with its own paradigm of profits—in the U.S., the pharmaceutical industry—whose funding shapes research agendas, medical education, media narratives, and political decision-making.

To understand how we got here, we need to look at the middle step of evolution—the one most people overlook. It's the key to understanding how we got here as well as helping both America and Americans improve health.

Evolution's Middle Step: Fitness Criteria

Evolution has three components: novelty or mutation, fitness criteria, and reproduction.

We talk a lot about mutation and reproduction, the middle step—fitness criteria or selection—is the one most people overlook. Yet it is the step that determines which variations persist. It is as true in nature as it is in human societies.

We got into our current problems because the fitness criteria of social changes are chosen by the hegemon—and they are mostly about the need for a profit. Profits translate in nature to survival—living long enough to reproduce more, but without consideration of the power of profits to skew the reproduction. Breeders use this logic to select for desirable traits. But desirable traits alone do not make a population healthier, and sometimes our choices create vulnerabilities, like quarter horses bred for speed that lack endurance. When President Reagan faced the slow progress in fighting the AIDS epidemic, he thought it reasonable to have the pharmaceutical industry help support the FDA. In evolutionary terms, that decision put siblings in bed together. And while it is used to strengthen desirable traits what you get more often from inbreeding are inbred weaknesses. That's why such relationships are taboo. Today, nearly half of the FDA's financing comes from the corporations it is supposed to regulate, and nothing from the FDA addresses cost.

But survival is not the only fitness criterion in nature. Another is complexity.

Complexity emerges in the great cooperative leaps of evolution that open entirely new playing fields. Endosymbiosis, endo (inner) and symbiosis (living and working together) is when bacteria who learned how to use sugars to provide energy were able to work with the larger cellular agents that had eaten them. That step in evolution led to the mitochondria that live in all animal cells to provide the energy we all need. Similarly bacteria that had learned how to make sugars from sunlight joined with other larger cells that led to the world of plants. That was about two billion years ago. Much later the emergence of sex triggered the Cambrian explosion in diversity. Even the endosymbiosis of the multitudes of microbes that live commensally with all higher organisms—including us—represents a cooperative leap. Complexity and diversity arise when agents in the environment cooperate to create novelty, a new playing field that allows them to adapt, stabilize, and flourish. The world of social insects is a vivid example, as is the Internet, at least in its early stages, before the information it gathers about us was recognized as profitable.

This is the kind of evolution that changes paradigms—the kind we need if we are going to Make America, and Americans, Healthy Again. So, when you listen to the news, try to identify the fitness criteria behind the changes. They tell you what the system is selecting for. Building understanding and meaning, and moving power down need a role in our fitness criteria.

Now, back to us.

Paradigms as Fitness Criteria

In *Why We Get Sick*, George Williams and Randolph Nesse introduced, as they put it, *The New Science of Darwinian Medicine*, by showing how often we misunderstand our own defenses. Taking a page from Claude Bernard, and the defensive value of a fever they asked: if artificially infected animals die more often when prevented from warming themselves, why do we ignore this in human care?

The answer is simple: paradigms determine what we see.

They act as fitness criteria for ideas.

They decide which observations survive and which are discarded.

And our current warfare■and■profit paradigm blinds us to our own unprofitable, but healthy, defenses.

A new paradigm—*defense medicine*—would support Williams and Nesse's evolutionary focus on strengthening physiological defenses rather than treating them as bothersome symptoms to be suppressed. It

would shift our fitness criteria from killing microbes to supporting the systems that keep us healthy and deal with the microbes at the same time.

The Airway: Our Most Expensive and Neglected Defense

Our most vulnerable openings are also where our defenses are most sophisticated. The airway is a prime example—and it's the one I've studied for twenty-five years.

The airway defense system relies on mucus to trap particles and cilia to sweep them away. But this system only works under the right environmental conditions.

In 1986, A. V. Arundel identified an “optimum zone” of 40–60% relative humidity in which the effects of airway irritants and microbes were minimized.[[1]](https://commonsensemedicine.org/1427-2/#_edn1) That affect on the agents was what he was looking for, and that was what he saw—because that was his paradigm. The effect of both allergens and the triggers of asthma were reduced in his optimal zone, as were microbial infections. What he did *not* see he relegated to a footnote: respiratory infections showed “insufficient data above 50% R.H.” The paradigm of the time prevented him from recognizing the obvious explanation—that airway defenses become more effective at higher humidity. And that realization is actually a simpler explanation for all the improvements seen in his optimal zone.

Human airway defenses likely evolved in tropical environments where humidity rarely drops below 50%. When humans migrated into temperate climates, winter heating dried cold and dryer air far below the optimum zone. That drying impaired airway defenses and contributed to the seasonal vulnerability we call ‘cold season’ and still experience today.

The water our bodies harvest from the air we breathe goes to the airway surface fluid that cilia need to sweep in. Dry secreted goblet cell mucus absorbs water from this fluid to become the sticky, slimy substance that traps microbes and irritants. For this defense to work, the volume of that fluid must be adequate.

Glycans: The Binding Language of Defense

Glycans—the sugar structures that clothe our cells—are central to this defense. The nine sugars and sugar complexes in this family, for humans, mediate communication, adhesion, and microbial binding. They are like uniforms, worn to tell others something about the wearer. They work much like bytes in a computer, carrying information for our microbial world.

Knowles and Boucher describe mucins that protect our openings as possessing a “combinatorial library” of glycan sequences capable of binding virtually all particles that land on airway epithelia.[[2]](https://commonsensemedicine.org/1427-2/#_edn2) This is not accidental. It is the result of millions of years of evolutionary refinement, shaping a defense system that is both elegant and inexpensive—and one we routinely neglect.

This binding has several consequences:

- **It prevents infection.**
- **It attenuates microbes**, rendering them unable to infect — a natural equivalent to the concept of attenuation in immunology.

- **This leads to the beginning of self-built immunity**, the glycan bound microbe is swallowed with the mucus and delivered to the Gut Associated Lymphoid Tissue (GALT) where the majority of immunity normally is done; it's safer and more durable than vaccines that bypass the GALT by going in the arm.
- **It creates individual encounters, gives microbes something they want to hang on to and avoids the colony-level threat signals that drive antimicrobial resistance.**
- **It constrains microbial transmission**, encouraging microbes toward coexistence with their host — a point developed by Paul Ewald in *Evolution of Infectious Disease*.^{[[3]]}(https://commonsensemedicine.org/1427-2/#_edn3) Without using a *selection* category framework or seeing this process as negotiating, Ewald showed that easy transmission increases virulence, and constrained transmission increases commensality. His correct explanation is that when transmission is constrained the microbe must stay with its current host, so killing that host is a dead end for the microbe as well, and not in its survival oriented interest. He lists all of the physical ways to do this but does not include the role of glycans in doing the same thing. With glycans we can negotiate an end to our war with microbes and resolve our problem with antimicrobial resistance. That's how our defenses have done it for millions of years.

This is how cooperation emerges between hosts and microbes. It is how we acquired the trillions of organisms that now contribute to our health. It's a very personal endosymbiosis that provides a new playing field.

A Missed Opportunity

In 1978, Bill Costerton saw this new playing field. Writing “How Bacteria Stick” in *Scientific American*, he described how bacteria adhere using glycans and proposed developing agents to interfere with this process.^{[[4]]}(https://commonsensemedicine.org/1427-2/#_edn4) The idea was visionary, but it was never pursued. It was not in the paradigm and not seen.

By accident, I stepped into that space at the end of the last century when I added a teaspoon of xylitol to a bottle of Ocean nasal spray to help my granddaughter avoid recurrent ear infections. That experiment became the beginning of Xlear nasal spray, which supports airway defenses by drawing water into the airway from the body to reproduce the optimal zone, and acting as one of Costerton's envisioned glycan decoys.

Finnish researchers had shown that chewing xylitol gum prevented about half of recurrent ear infections, but our granddaughter was too young to chew gum. They said the xylitol worked on the microbes and they live in the back of the nose, hence the nasal spray, in both sides of the nose prior to every diaper change. Ten kids in my practice with this problem followed this program for a year and reduced their pattern of infections by more than 95%. The “X” on Xlear confuses many. It stands for both xylitol and its Finnish pronunciation to honor both it and them; the ‘x’ in Finnish is pronounced like a soft K, hence it sounds like ‘clear,’ which is what it does for the nose and the airway.

Jerry, my wife was the reason behind this. She was a special ed teacher who had looked at her students' medical histories and realized a connection between early ear infections and the learning and language problems in her students. She was not without support either, and they were knowledgeable. Jerome Klein was the co-author of the standard text *Otitis Media in Infants and Children*, the later editions of which include a chapter on this connection. At dinner with Dr. Klein long ago discussing this issue he directed me to tell everyone I talked to that “this Jerry agrees with your Jerry.” Inflammatory fluid collects in the middle ear, and when recurrent congeals into thick mucus that prevents proper hearing. But a good part of the reason for this causation is not

something they included in their textbook: the correlation of the infections with the developmental window when the brain is optimally tuned to learning the sounds that make up our languages is as significant as the blockade of fluid dampening the sounds. That window is between three months before birth to about two years of age. A real possibility of Xlear is preventing the learning and language handicaps my special ed teacher wife was afraid of.

That was the beginning of Xlear nasal spray, which turns out to optimize our normal airway defenses by osmotically pulling water into the airway, as well as being a glycan mime, blessed with symmetry to the glycans and, likely because of its flexibility, able to mimic many glycans and thus preemptively binding many pathogens away from infecting us. That list includes the notables of *Streptococcus pneumoniae*, RSV, H1N1 flu, SARS-CoV-2, *Staphylococcus aureus* and others.

The history of Xlear since the turn of the century has been slow growth, little research, and later conflict. In the beginning I thought the FDA would be interested. And they were, but they wanted it done according to the books. I filed an IND (Investigational New Drug) only to soon find out how much that would cost. So I called the pharmaceutical companies, there to find a lack of interest because xylitol is a food that cannot be controlled and made into a profitable drug. They could not compete with 10¢ worth of xylitol in a bottle of saline nasal spray that a prudent person could mix up in the kitchen.

So Xlear is a cosmetic; it's soap for the nose. Without FDA approval no health claims can be made, hence the slow growth. And when the pandemic began and Xlear paid the Antiviral Research Institute at Utah State University to tell them what xylitol did to the virus the results should have changed history and saved us a few trillion dollars. Xylitol reduced the level of the virus by more than a thousand times in five minutes, not by destroying it but by simply stopping it from holding on. But instead, it led to a false advertising charge from the Federal Trade Commission. A charge Xlear fought and won in 2025.

Xlear is the leading argument in our need for a new paradigm.

We began with a simple idea: MAHA will not happen without a paradigm change.

And now you've seen why.

Our old paradigm—warfare, profit, and the belief that microbes are the enemy—has blinded us to the defenses evolution built into us. It has blinded us to the cooperation that makes life possible. It has blinded us to the fitness criteria that determine which ideas, which systems, and which societies survive.

Nature has been negotiating with microbes for billions of years. It built defenses that are elegant, adaptive, and cooperative. It built glycans, mucins, cilia, humidity■dependent systems, and a microbiome that is not our enemy but our partner. It built a way of living with the microbial world rather than fighting an endless war against it.

And yet our medical system—our research priorities, our regulatory structures, our education, our politics—are still operating under Pasteur's half of the story. We have ignored Bernard's soil. We have ignored our own defenses. We have ignored the evolutionary logic that keeps organisms healthy.

The story of Xlear is not just the story of a nasal spray.

It is the story of what happens when a new idea meets an old paradigm.

It is the story of how innovation is slowed, sidelined, or punished when it does not meet the fitness criteria of the system.

And it is the story of how much we stand to gain when we finally see what has been in front of us all along.

This is the work of **Common Sense Medicine**, the 501(c)(3) that supports research on foods with drug-like effects and the paradigm of defense medicine. It is also the home of my two recent books both titled *Common Sense Medicine*, subtitled *Healing the Body from the Inside Out*, and *Making America Healthy Again*—both available on Amazon, with all profits supporting the foundation’s mission Making America Healthy Again is not a slogan.

It is a shift in how we think.

It is a shift from war to defense, from profit to coherence, from centralized power to distributed control, realizing that defense is best built, not by a Military Industrial Complex, but as George Kennan recommended in his 1946 long telegram about the Soviet Union: fixing cracks in one’s society and building cooperation outside it.

It is a shift toward the principles that make systems—biological or social—resilient: control, understanding, and meaning.

We have the science.

We have the evolutionary logic.

We have the examples from nature, from history, and from our own bodies.

What we need now is the courage to change the paradigm.

Paradigms change when the new ones have more value. Ours will change when the value of our health overwhelms that of the hegemon’s profits.

If we do that—if we support our defenses instead of overriding them, if we align our systems with how nature actually works, realizing that defense is fixing cracks rather than the profits of waging war—then making the world, and its people, healthy again is not only possible.

It is inevitable.

Thank you.

[[1]](https://commonsensemedicine.org/1427-2/#_ednref1) Arundel AV, Sterling EM, Biggin JH, Sterling TD. Indirect health effects of relative humidity in indoor environments. *Environ Health Perspect.* 1986 Mar;65:351-61. PMID: 3709462; PMCID: PMC1474709.

[[2]](https://commonsensemedicine.org/1427-2/#_ednref2) Knowles MR, Boucher RC. “Mucus clearance as a primary innate defense mechanism for mammalian airways.” *J Clin Invest.* 2002 Mar;109(5):571-7. PMID: 11877463; PMCID: PMC150901.

[[3]](https://commonsensemedicine.org/1427-2/#_ednref3) Ewald, Paul W. *Evolution of Infectious Disease*. 1993, Oxford Univ Press, London.

[[4]](https://commonsensemedicine.org/1427-2/#_ednref4) Costerton JW, Geesey GG, Cheng KJ. How bacteria stick. Sci Am. 1978 Jan;238(1): 86-95. doi: 10.1038/scientificamerican0178-86. PMID: 635520. This article predates electronic media and is hard to find. It's here in my media-search commonsensemedicine and "Costerton" (in quotes to insure its inclusion).