

WHEN DOUBT IS USED AS A WEAPON

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My editorial in the previous issue¹ pointed out that something can be true even if there is no universally accepted evidence to support it. Dental flossing, for example, is almost certainly worthwhile despite the lack of long-term studies that confirm its benefits. Randomized long-term studies of a simple proposition like “flossing is good for your teeth” can be so complicated or expensive that they have not been done for practical reasons.

For the lay public, it seems reasonable that if there is no consensus about a scientific question, it has not been decided.* Lacking training in the scientific method, they misunderstand the difference between true controversy and the persistence of a negligible few, but highly vocal, holdouts who are skeptical of any evidence. The process of continuous questioning that follows major scientific advances can confuse even an educated public. If Einstein could rewrite Newton, they ask, how can we be sure of anything? Don’t we call explanations “Theories?” Is there really such a thing as absolute truth?

Unfortunately, powerful interest groups have for decades cleverly exploited a variant of this fallacy to manipulate public opinion in their own favor. When evidence about a question that affects public health (e.g. “does smoking cause cancer?”) runs counter to their interests, they seek to invalidate the evidence by insisting there is persistent controversy within the scientific community, and the issue has not been resolved. When they say “we need more data,” who can argue against getting more information?

This was the strategy pursued for decades by the tobacco industry. As long ago as the 1950s their own research connected smoking with cancer, but they suppressed the evidence. When the evidence became more widely known, they insisted that the evidence was controversial and flawed. When the evidence became incontrovertible and widely accepted, they raised the

specter of government regulation as the road to socialism and a threat to our freedom. Shouldn’t we be free to harm ourselves as we wish?

The tables were finally turned only when whistleblower Jeffrey Wigand revealed that the tobacco industry had engaged in outright fraud to conceal the addictive properties of nicotine and the link between smoking and cancer. Meanwhile, health care costs were being increased for everyone by the higher medical expenses of smokers. An additional nail in tobacco’s coffin came later when the harm of secondhand smoke was demonstrated, and an individual health problem became a public health problem.

Subsequently, many other industries used the tobacco industry’s strategy of sowing confusion and doubt to counter evidence that their products threaten the public’s health. Sadly, these efforts have been inadvertently abetted by the media, who insist on presenting both sides of every question, thus misguidedly providing a platform for industry representatives to speak on a par with scientists. On air, industry hacks present themselves as experts, though they generally have no bona fide scientific credentials and are little more than public relations professionals and lobbyists for industry-funded organizations. Adding to the deception, these organizations usually have misleading names like The Partnership for Affordable Clean Energy, which is actually an anti-clean energy group funded by the fossil fuel industry (the Southern Company). It lobbies against clean energy technologies such as wind and solar.

The major public health harms that were concealed or obfuscated for decades are discussed in the revealing book *Merchants of Doubt* by science historians Naomi Oreskes, (Harvard), and Erik Conway (NASA’s Jet Propulsion Lab at Cal Tech).² The affected industries wrongly insisted that debate persisted and we needed more information not only about smoking and cancer,

*A widely read article by the Associated Press in August 2016 that drew attention to the lack of randomized trials of flossing, created so much discussion and doubt about its benefits that the American Dental Association was obliged to reaffirm its importance.

but also about toxic chemical pesticides' effects on animals, birds, and humans; flame retardants' effects on fetal and child development; sugar and sugar-sweetened beverages causative role in obesity; acid rain's harmful effects on aquatic environments and forests; and CFCs' depletion of the ozone layer.

The most compelling and worrisome story in their book recounts the simulated "controversy" about global warming. (NASA favors "climate change" because "temperature change itself isn't the most severe effect of changing climate. Changes in precipitation patterns and sea level are likely to have much greater human impact than the higher temperatures alone."³ But "climate change" strikes me as a euphemism that seems ambiguous and therefore less threatening than "global warming." The climate is only changing in one direction, and "climate change" seems like a label the fossil fuel industry would select for a disinformation campaign.)

There is a backstory to the motivation of global warming deniers that is chilling because it reveals why many informed people still oppose any action, and why it will be so difficult to squeeze necessary legislation through Congress. I was astonished to learn that these deniers (in the public and in Congress) object to any action on global warming because they instinctively oppose any action that increases the size or authority

of government. They view every new regulation as another encroachment on our freedoms and a step on the road to socialism.** Even when they pay lip service to market-based solutions like "cap and trade," they don't view them with enthusiasm since they would be government mandated and would require a new Federal bureaucracy for implementation.

Anyone who accepts the reality of global warming understands that it is an existential threat to humanity itself. It is therefore troubling to read that those who deny its reality oppose action on ideological, not evidential grounds. Ideology is based on belief, and is not generally swayed by reason and evidence. As Physics Nobelist Steven Weinberg said, "you can't reason someone out of something they have unreasoned their way into."

Since any meaningful action to prevent further global warming will entail international cooperation, it will necessarily require government action. And, as physicians, we must engage these issues because they go to the core of our patients' well-being. In doing so we should remember that we are the most scientifically educated individuals most lay persons know. We must do what we can to assure that discussions of issues that affect public health will be based on science and evidence, not on political philosophy or other beliefs.

**Friedrich Hayek, an Austrian/British economist, in 1944 published *The Road to Serfdom*, which argued that a government with too much economic control erodes individual freedoms and can lead to tyranny. In America, the 1961 book *Capitalism and Freedom* by Nobel Laureate Milton Friedman made similar arguments.

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