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EDITOR'S PAGE

Fake News, Alternative Facts, and Things That Just Are Not True

Can Science Survive the Post-Truth Era?

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"If I had a world of my own, everything would be nonsense. Nothing would be what it is, because everything would be what it isn't. And contrary wise, what is, it wouldn't be. And what it wouldn't be, it would. You see?"
—Lewis Carroll, Alice's Adventures in Wonderland & Through the Looking-Glass (1)

Like many Americans, I am increasingly concerned about the growing partisan divide in the United States. What is most troubling is not that *we the people* hold widely disparate political views in America, for that has gone on since the dawn of the Republic, but rather that as Americans we have lost the ability to discuss our differences in an open, civil, and forthright manner. Worse yet is that we seem to be unable to agree on what we disagree on. In the setting of this political maelstrom, it perhaps comes as no great surprise that the Oxford Dictionaries Word of the Year 2016 was *post-truth*, which is an adjective defined as "relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief" (2). In the world of politics, the term post-truth has come to refer to a political culture in which debate is framed largely by appeals to emotion that are disconnected from the details of policy, and by the adherence to talking points that often ignore the facts. Given that the scientific method consists of a series of experiments and factual observations that lead to the formulation and testing of hypotheses, one might reasonably question whether scientists are also at risk of wandering off into their individual post-truth silos, and if we will also lose our ability to engage in meaningful rigorous scientific debate to advance the field.

Perhaps more than at any time in history, we are graced by scientific achievements that promise to revolutionize the health and well-being of people all over the world. Given that science has been so successful, the threat imposed by post-truth thinking seems distant, and unlikely to emerge within the modern scientific community. However, it bears emphasis that scientists engage in post-truth thinking, often with the best intentions, and often without knowing it. There are several likely explanations for how this might occur. First, the rapidly changing nature of science means it can disrupt existing paradigms, so that scientists whose body of scientific work depends on existing paradigms may be slow(er) and or resistant to adopt new ideas. I can recall sitting in various study sections listening to rigorous discussions from learned colleagues about how a new idea proposed in a grant could not possibly be true because that new idea did not conform to the existing paradigms. In this setting, the debate over what is true and false is ultimately determined by the conditions under which what is true and false is decided. Another explanation is that what is deemed as the truth scientifically is often context dependent. Philosophers have termed this concept "epistemic relativism," emphasizing that there are no facts, only interpretations of facts. As physician scientists, we study diseases that are the result of perturbations that arise within complex, homeostatic biological systems that have become dysregulated for some reason. In one context, blocking the biological system may lead to loss of homeostasis and worsening outcomes; in another context, blocking the dysregulated system may lead to improved outcomes. Thus, the data provided by rigorously performed scientific studies are rarely black and white and are dependent on the contextual boundaries imposed by the experimental

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conditions chosen by the investigator. Third, and this may come as a shock, the scientific community is not immune to investigators who purvey fake news, alternative facts, and things that are just not true. Fortunately, in my experience, these individuals are rare. In his 1988 Presidential Address to the American Society for Clinical Investigation, Robert Lefkowitz spoke eloquently about the 3 elements of the spirit of science: enthusiasm for new knowledge, creativity, and integrity (3). Lefkowitz described integrity as "an unswerving commitment to what we perceive as true and right, and to a set of consistent, personally realized principles of action." He states:

> *It is not over the issue of truth vs. blatant falsehood that our integrity is most likely to be compromised. It is rather in the realm of a whole series of more subtle corruptions that integrity may be tested…. whereas lying involves falsity, bullshit involves fakery: it is essentially phony rather than false…In a sense, these bullshitters are even greater enemies of the truth than liars. At least the liar is guided by the truth, for to lie he must first define what he takes to be the truth. Not so the bullshitter. He pays no attention at all to the truth. Overindulgence in bullshit thus ultimately tends to corrupt the most fundamental aspect of the scientific process, the founding of conclusions on accurate and appropriate data (3).*

At *JACC: Basic to Translational Science*, the editors recognize the enormous responsibility of sharing and contextualizing translational scientific breakthroughs in the post-truth era. Wherever possible, we will strive to cover both sides of a scientific discussion through the use of editorials. Given the nature of scientific discovery, we also recognize the need to take some risks on new ideas and early-phase ideas while assiduously avoiding engaging in fakery. Finally, we promise to always be governed by the spirit of science, as well as the abiding commitment to publishing research that seeks to improve the clinical outcomes for patients afflicted with cardiovascular disease. As always, we welcome your thoughts, and would ask you to share your opinions on the potential impact of post-truth on translational medicine, either through social media (*#JACC:BTS*) or by e-mail (JACC@acc.org).

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