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Walking the Talk in a Vaccine Study

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Walking the Talk in a Vaccine Study

Abstract

"Scientists and engineers of all religious stripes and colors have helped bring about the amazing advances in science and technology that have improved our lives and well-being over the past few hundred years.."

Posting about science as a reliable tool for understanding from *In All Things* - an online journal for critical reflection on faith, culture, art, and every ordinary-yet-graced square inch of God's creation.

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Walking the Talk in a Vaccine Study

Carl Fictorie

July 27, 2021

I am fully vaccinated. *That's* the statement of the season. Recently, I got my fourth vaccine shot—that's right, four. Why four, you ask? Because I am participating in a vaccine trial.¹ Back in January, I received two shots which may have been the vaccine or a placebo. In April and May, I got two more, the opposite of what I got in January. In this "blind crossover" study, neither participant nor provider know who got the vaccine or placebo or later, but after the two rounds of shots, all participants are vaccinated. Thus, I know I am now vaccinated, but I don't know if I was vaccinated in January or May.

There are several reasons why I chose to volunteer to participate in a vaccine study. A number of my colleagues are participating in vaccine studies and talking with them piqued my curiosity. When I decided to sign up in November, the timeline for vaccine availability suggested summer or fall of this year. Signing up for a study gave the possibility of getting a vaccine sooner. Little did I know, at the time that the Moderna, Pfizer, and J&J vaccines would get EUA² so quickly this spring.³

The most important reason for this discussion is that I am a professor of chemistry. As a professor—one who professes—I wanted to walk my talk. I teach my students that science is a reliable tool for obtaining genuine knowledge of how creation⁴ works⁵, to use it to provide for our needs, and to make useful⁶, interesting, and beautiful things.⁷ Even though I don't have expertise in the science of vaccines that is any better than the average person, the opportunity to participate in a vaccine trial seemed an excellent opportunity to demonstrate my confidence in science in general.

On what basis, however, do I have this belief that science is a reliable tool for obtaining genuine knowledge? How can I have that confidence if I am a Christian who believes in a creator God while living in a scientific world that is largely non-religious in practice?

To begin, I believe in a God who both created and sustains the natural world. What this means is that God is not merely the grand architect of Genesis 1 and law giver of Psalm 19. He is also an intimate caretaker of his creation, upholding it day by day, moment by moment. He is the one with detailed knowledge of his creatures, proud of his behemoth (Job 40) and feeding his birds (Matthew 6). Too often, we focus on God's creative activity while overlooking his sustaining activity. For my students, if they are to understand creation, it is important that God is faithful to the reactions in acid-base chemistry and to the reproducibility of visible spectrometers. Our experience of creation, particularly the physical and

biological aspects of creation, is reliable and predictable because of God's faithfulness to creation.⁸

God's faithfulness also manifests itself in the ability of humans to understand the order in creation. This applies to both Christians and non-Christians alike. Sin may prevent people from seeing the evidence of God's presence in creation, but it does not prevent those same people from gaining understanding of how creation works. Sin does not make the unbeliever ignorant or stupid. Scientists and engineers of all religious stripes and colors have helped bring about the amazing advances in science and technology that have improved our lives and well-being over the past few hundred years.

Sin does, however, cloud our minds and hearts to the presentation of the power and divinity of God evident in creation. So, sinful humanity rejects God. In our secular postmodern world, this amounts to rejecting the idea of a god entirely and replacing it with a belief that nature is all that is.^{9 10} For secular naturalists, the ultimate source of truth is nature itself. That is, the arbiter of truth is the appeal to the data and evidence obtained from studying nature. Only those theories and models that have been successfully tested in nature gain acceptance.

When this notion is coupled with the notion that God is faithful to the law and order of creation, it follows that the theories and models of empirical science ought to produce reliable and genuine knowledge about nature.¹¹ If scientists hypothesize incorrectly in their work, the consistency with which God sustains creation will prevent the success of the scientist's experiments and force them to reconsider their ideas and draw them closer to an accurate understanding.¹² Thus, science grounded in a commitment to experiment and evidence in its methods of investigating nature is constrained by God's commitment to sustaining creation.

There is a tangential point that is necessary to dispel some misconceptions. My expertise in chemistry does not overlap with the science and medicine of vaccines. I can understand the chemical structure of the vaccine and I can explain why handwashing is effective at destroying coronavirus.¹³ Beyond this, even with a Ph.D., I turn to experts to help me understand the medicine and biology¹⁴ and to get good advice on how to act appropriately. Particularly valuable has been the public science presented by Francis Collins, head of the NIH.¹⁵ He is a co-worker of the now more famous Anthony Fauci. But more important to me, he is a member of the same organization of Christians in the sciences that I am.¹⁶ He spoke to the organization in January regarding COVID-19.¹⁷ In part because of this professional connection, I trust his expertise, which in turn provides confidence to trust Dr. Fauci. And this *is* the point. No one person can know all science, so we rely on experts. While there are lots of ways to develop trust in those experts, we need to give them that trust, and to listen to their wisdom and act on their advice. This need not be a blind faith, and we should ask hard questions and expect good answers.

Consequently, in our current cultural context, good science produces reliable and useful knowledge about how creation works. Thus, I have trust and confidence in the research surrounding the design and development of these vaccines. And so, to walk the talk in this case meant joining a vaccine study, so I could model to my students a healthy appreciation for the faithfulness of God to his creation.

1. Specifically the Phase 3 trial of the Novavax NVX-CoV2373 vaccine candidate.
2. Emergency Use Authorization is a preliminary authorization granted by the FDA to permit the use of new medicines in the case of a public health emergency. The medicines have had to been through the three standard phases of testing to ensure that it is both safe for use in humans and effective toward the illness.
3. Novavax changed their study parameters to the blind crossover after I joined, likely in response to the other trials getting EUAs. This change encourages participants to remain in the trial rather than seek out other approved vaccines. At this point, the trial continues looking for long term effects and determining if the now vaccinated participants get detectable cases COVID from one of the newer variants.
4. Calvin B. DeWitt, *Caring for Creation: Responsible Stewardship of God's Handiwork*, Grand Rapids: Baker, 1998.
5. See, for example, *Science for All Americans*, a 1990 publication of the American Association for the Advancement of Science.
6. Ian Hore-Lacy, *Responsible Dominion: A Christian Approach to Sustainable Development*, Vancouver: Regent College Publishing, 2006.
7. Roald Hoffman, *The Same and Not the Same*, New York: Columbia University Press, 1995.
8. Tim Morris and Don Petcher, *Science and Grace: God's Rule in the Natural Sciences*, Wheaton: Crossway Books, 2006, especially chapters 5 & 6.

9. For an example of one such viewpoint, see Peter Atkins, *Creation Revisited: The Origin of Space, Time and the Universe*, London: Penguin Books, 1994.
10. Roy A. Clouser, *The Myth of Religious Neutrality*, Revised Edition, Notre Dame: University of Notre Dame Press, 2005, especially chapters 5, 8, & 10.
11. I prefer to use the word creation when I reference the universe and the stuff within it. However, our secular culture tends to use nature for this purpose. Thus, here and elsewhere, I use nature specifically when speaking in contexts where I refer to contemporary science as practiced by the average scientist, while using creation as much as possible otherwise.
12. This corrective is not a saving grace, but only a corrective to an incorrect notion of the workings of nature. It's possible that such correctives will cause an unbelieving scientist to reconsider their core beliefs, but not necessary.
13. It's based on the idea that like dissolves like. See Ian M. MacKay, "[Why does Soap Work so Well on SARS-CoV-2?](#)", March 9, 2020.
14. My biology colleagues have been immensely helpful in this regard.
15. See his NIH profile, blog, and social media. Dr. Collins is well-known for leading the research on sequencing the human genome.
16. [The American Scientific Affiliation](#).
17. He regularly appears on news and media outlets discussing the current state of COVID-19 research and providing the public with sound knowledge and advice on how to manage it.