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Anti-Intellectualism and Covid19 Vaccine Hesitancy

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Introduction:

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Discussion:

Every clinician has encountered a patient who cannot be swayed towards accepting medical advice regardless of the evidence and whose explanations for why they reject expert opinion sound absurd to our ears. In recent times, this has manifested as Covid Vaccine hesitancy that threatens to prolong the pandemic. (1) In a post-facts world, such discussions very much involve the nature of reality from a philosophical perspective.

Please be aware that convincing people that their strongly-held beliefs are false is very difficult and may likely require multiple, repeated conversations with no guarantee of eventual success. Anyone would have difficulty facing the possibility of having caused or contributed to the deaths of close family members by remaining unvaccinated, so instead, reframe the discussion as a question of interpreting new data that was not previously available or understood until recently.

"Please do not debate individual rights vs. social responsibilities to protect each other; instead, focus on the fact that the Covid vaccine is selfishly the best way to protect the patient and his or her immediate family. Discussions that emphasize personal health benefits--rather than the health of others, economic recovery, or vaccine safety--are more likely to convince listeners. (2)"

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Below follow some concepts to raise with vaccine-hesitant patients. The following are not exact scripts but should be tailored to an individual's specific concerns and level of understanding.

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Opening the Mind

The initial hurdle in Covid vaccine discussions will be the patient's reluctance to discuss the issue. By now, many of the vaccine-hesitant will have been through repeated arguments with friends, family, and likely other physicians and may be unwilling to engage further. Begin with an appeal to the patient's idealized sense of self: "Do you think of yourself as an open-minded person? Are you able to learn new things and change your mind?" Most individuals' sense of self includes the trait of open-mindedness, and this should make them more receptive to further discussion.

Step 2 involves asking the patient what worries them about the vaccine. Not only will this help you tailor the discussion to address the patient's concerns, but anyone with strong beliefs will likely feel the need to express their opinions before they can focus on processing new information.

How Do You Know What Is True?

One option is whatever feels right, makes sense, and seems obvious, but that is not very helpful in talking to each other because what is obvious to you might be obviously wrong to me.

The Scientific Method is a systematic way of studying reality by identifying a problem, stating a hypothesis, performing a reproducible procedure, gathering data, analyzing it, forming conclusions, and then repeating the whole process over and over to refine our knowledge. (3) The philosopher Hume pointed out that trusting past performance to predict future behavior only because that process worked in the past (in other words: if it works, it works) is circular reasoning. However, even Hume believed that Science was the best way to describe reality, because otherwise *"we would be entirely ignorant of every matter of fact beyond what is immediately present to the memory and senses. We should never know how to adjust means to ends or to employ our natural powers in the production of any effect. There would be an end at once of all*

action, as well as of the chief part of speculation." (4)

Modern medicine is now based almost entirely on the Scientific Method: *"Evidence-based medicine is a set of principles and methods intended to ensure that to the greatest extent possible, medical decisions, guidelines, and other types of policies are based on and consistent with good evidence of effectiveness and benefit."* (5) Any *"practitioner who claims not to need any statistical or experimental studies but relies solely on clinical experience as adequate justification, by that very claim is shown to be a nonscientifically minded person whose professional judgments are not to be trusted."* (6)

"Falsifiability is the logical possibility that some evidence might disprove any scientific theory. (7) All scientific theories are falsifiable. (8) If hypothetically you were to find an appropriately conducted research study (published in a peer-reviewed journal) with enough subjects that showed the Covid 19 vaccination did not work--even though every other earlier study had different results--an honest scientist would then have to admit they were wrong about the vaccine."

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Imagine you are right that the Covid19 vaccination kills more people than it saves. But one night, while you are sleeping, a wizard teleports you to a bizarre alternate world. This parallel world is very much like our own: everyone and everything looks the same. The one difference is that the Covid19 vaccine did work in this parallel universe and saved lives. How would you know which world you were living in? Would you ever find out? In other words, if you did not already know in advance that I was wrong and you were right, how would you find out? Don't you think you should have a good answer for why you are so sure?

To continue to believe something after knowing there is proof it is wrong is a "Delusion" (*"fixed beliefs that are not amenable to change in light of conflicting evidence"*), (9) a key component of the "Psychotic" category of mental illnesses. (10) The question is, what is the proof?

"Anecdotal Evidence" vs. "Statistically Significant"

Most people trust the stories they hear from friends and family or rely on past personal experiences. Stories about events that happen to one person (even yourself) or a few are called "Anecdotal Evidence." But how do you know if what happened to just a few people is a pattern or random coincidence? If my brother had a heart attack while wearing a seatbelt, does that prove seatbelts cause heart attacks? If you know someone who had bad side effects from a vaccine, how do you know if that is more reliable than my stories about people who had no reaction and stopped getting the diseases the vaccine protects them from?

Scientists rely on "Randomized Controlled Studies," where large numbers (the more subjects, the more powerful the conclusions) (11) of subjects are given an exposure (such as the vaccine) and then evaluated to see whether outcomes (such as Covid infections or side effects) are significantly more likely with or without the exposure.

A finding is considered meaningful if it is "statistically significant," meaning that the probability that the experiment's results were obtained through random chance instead of because the theory is right is very low. Typically this probability is required to be less than 5 to 0.1%, (12) on the assumption that random chance would result in a "normal distribution" of information. (13)

"You should trust doctors' medical recommendations to take the vaccine more than the opinion of people who are not experts, the same way we would trust engineers to design a bridge or pilots to fly a plane. No one is perfect, and of course, doctors can and have made mistakes. But your doctor's recommendation that you get vaccinated is based on genuine concern for your well-being and health."

Trust the Experts

You should trust doctors' medical recommendations to take the vaccine more than the opinion of people who are not experts, the same way we would trust engineers to design a bridge or pilots to fly a plane. No one is perfect, and of course, doctors can and have made mistakes. But your doctor's recommendation that you get vaccinated is based on genuine concern for your well-being and health. If you did not trust your doctor's medical opinion, why did you come to the clinic at all?

The "Dunning-Kruger Effect" describes the well-studied tendency of untrained people to be more confident about their skills than experts despite being worse at those skills. The same studies showed that competence improved when people learned more about the subjects they were tested on, so please read as much reliable information as you can. (14) If you would like to "do your own research," then please understand that to a Scientist, "research" means a valid scientific study published in a peer-reviewed journal where the results are reported in terms of statistical significance, not the anecdotal evidence of a story told by someone who is not an expert.

Make the Right Choice for You

It is your choice whether to vaccinate, but your body and your family take the risk when you make the wrong choice. Your doctor's job is to provide you with the information you need to make the best choice for yourself.

Herd Immunity will not protect you because a) antibodies from Covid19 infections wear off after six months, and b) not enough people have been vaccinated. (15)

Probability, Not Guarantees

There are no guarantees in life or medicine. Just because your doctor cannot promise results with absolute certainty does not make you a "guinea pig." Every treatment or vaccine is its own experiment, just like every decision not to vaccinate. Vaccinations are like seatbelts: they reduce but cannot eliminate risk.

"*A common anti-actuarial argument, or misconception, is that group statistics do not apply to single individuals or events. The argument abuses basic principles of probability. Although individuals and events may exhibit unique features, they typically share common features with other persons or events that permit tallied observations or generalizations to achieve predictive power*". (16) You are not a statistic, but statistics can help us predict what will happen and which vaccination schedule will most likely keep you healthy.

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God will protect you...by vaccinating you

When people refuse medical advice out of faith, I am reminded of the famous parable of the flood. "Once a man of faith was trapped in his house by a hurricane, so neighbors drove by to rescue him, then the police sailed by in a boat as the waters rose, then finally the coast guard showed up in a helicopter with a rope ladder, and each time the man refused to leave, saying 'Don't worry, God will protect me!' Instead, he drowns, and as he meets his Maker in Heaven, he asks, 'Why didn't you save me after I was so faithful?' God responds, 'I sent you a car, a boat, and a helicopter, why wouldn't you accept My help?'"

"When it is my time, it is my time," but why not take medicine, or a vaccination, when it will protect you and prolong your life?

Balancing the Benefits against the Side Effects

All vaccines, like all medications, have side effects. Common side effects of the Covid19 vaccinations include Swelling, redness, pain at the injection site, Fever, Headache, Tiredness, Muscle pain, Chills, and Nausea.

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Other side effects are rare. Approximately 2-5 people out of every million vaccinated can experience an allergic anaphylactic event, although this is immediately treatable (such as with Epinephrine).

In just 47 of the 14.7 million doses of the Johnson and Johnson Covid19 vaccine, and 2 of the more than 367 million Moderna Covid 19 vaccinations reported a clotting reaction called "Thrombosis with Thrombocytopenia Syndrome." Out of the more than 386 million doses of COVID-19 vaccines administered in the U.S., there were 7,899 (or only 0.0020%) reports of death from 12/14/2020 - 09/20/2021. The VAERS (Vaccine Adverse Event Reporting System at https://vaers.hhs.gov/) has received 890 confirmed reports of myocarditis and pericarditis. These reports of adverse events to VAERS following vaccination, including deaths, do not necessarily mean a vaccine caused the health problem, just like the anecdotal evidence of wearing a seatbelt and then having a heart attack would not prove (with statistical significance) that seatbelts caused heart attacks. Just because one event happened after the other does not mean the first event caused the second. A review of available clinical information has not established a causal link to COVID-19 vaccines. (17)

Covid is so bad that you need the vaccine

Compare the side effect numbers above to the total 686,000 U.S. deaths from Covid 19 (18) out of a total U.S. population of 328 million (19), which does not even include illnesses, costly hospitalizations, and long-term complications from Covid-associated clotting issues. The evidence shows that not getting vaccinated is a much bigger risk than taking the vaccine.

Imagine, for example, that you were offered a bowl of 100 jellybeans, but one of those jellybeans was randomly poisoned; surely you would not take even a single jellybean, even though the probability of eating the poisoned one was low, because it would be an unnecessary risk. Remaining unvaccinated is a similarly unnecessary risk. Although most people who get Covid will recover, the risk of death or disability is so high, and the vaccines are so effective that you should get vaccinated as soon as possible.

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Make the Best Choice with Limited Information

Science cannot know everything, and there is more to the Covid 19 vaccination than what we can measure today, but that does not mean the things we do not know will prove us wrong. It could just as quickly be that the Covid infection is worse than we think, and the vaccination is even safer than we think. Everyone on Earth makes the best decision possible with the limited information they have available to them at the time, including your doctor. Every few months, there are new research studies out there, which is why recommendations change.

"*Antistatistical clinicians persist in making what Dawes* (20) *called the 'vacuum argument,' in which (imagined, hoped for) supportive evidence is simply hypothesized, whereas negative evidence that has actually been collected is ignored. ... One observes a series of tactical retreats, reformulations, and ad hoc explanations, coupled with a complacent assurance that if the 'right sort' of the study were done, things would turn out differently. ...One must classify continued rejection (or disregard) of the proactuarial generalization as clear instances of resistance to scientific discovery, (21) or,*

more generally, as exemplifying H. L. Mencken's dictum that most people believe what they want to believe". (22)

We have to use the best data we have, not what we wish. The vaccines are new because Covid19 is new, but the background research adapted to the new 2019 coronavirus variant existed for years prior to 2019, and enough scientifically valid data exists to recommend vaccination. (23) Current research shows the Covid vaccine makes you eight times less likely to catch Covid and 11 times less likely to be hospitalized if you do get it. (24) Every day you wait to get vaccinated is an added risk that you might get Covid and develop a severe illness or might expose a family member.

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