

It's fear, not facts, that influence our attitudes and beliefs

"We are the healthiest, wealthiest, and longest-lived people in history. And we are increasingly afraid. This is one of the great paradoxes of our time." As said by Daniel Gardner in his book "The Science of Fear: How the Culture of Fear Manipulates Your Brain" more than a decade ago; fear can be all consuming and it is often hard to understand how we choose what to be afraid of and why.

8 years ago this month, Japan suffered the great Tohoku earthquake and tsunami that killed more than 20,000 people and caused US\$300 billion of damage. Entire towns were wiped out when the wave hit on March 11, 2011. Farms, factories, roads, railways and electricity lines were destroyed, while almost half a million people were made homeless. Yet when you research this tragic event, the focus is more than likely to be on the resulting accident at the Fukushima Daichi nuclear power plant than on the natural disaster. The reality is that **no one died from the nuclear accident**, although some died indirectly as a result of the evacuation. No one was exposed to enough radiation to cause future concern for their health, but there are health impacts, all as a direct result of a tremendous fear of radiation and what people believe may be its potential impact on the population and their families. It is this same fear that is delaying the recovery of the nearby towns even though radiation levels are as low as other safe cities in the world like Hong Kong and London while the area's fruits and vegetables are fine to eat and so is the catch from the Fukushima fishing boats. When this tragedy is discussed, it is not fear of earthquakes and tsunamis that are talked about, it is an overwhelming fear of radiation.



Japan plans to lift the evacuation order for part of Okuma town on April 10

But it is not just radiation that we fear. For years, there has been a portion of the population that has feared vaccinations and as a result, have refused to immunize their children against preventable childhood diseases. Currently, we have an outbreak of measles in North America, a disease that should no longer exist given there is a very effective vaccine to prevent it. But over the past decades there has been a huge fear campaign by so called anti-vaxxers, causing many people to be wary of vaccinating their children and allowing the disease to flourish once again. The science clearly shows the risk is essentially zero for those getting the vaccine while the risk of complications from the disease are indeed real. Prior to the availability of a measles vaccine, 2.6 million children annually died of the childhood disease. Today, that number is 109,000 but it should be zero. The WHO (World Health Organization) has now declared "vaccine hesitancy" as one of the top ten health threats to the world in 2019. So why is it, when the science is clear, so many are so afraid of vaccines to the point that they are willing to put their children's health at risk (although they believe

they are protecting them)?

This month we had a second tragic accident with the new Boeing 737 MAX as an Ethiopian Airlines plane crashed soon after take-off causing 157 deaths. This is the second crash of this new version of the popular airplane in 6 months; the first being a crash of a Lion Air flight in Indonesia last October, killing 189. Never before in the modern air travel age have we seen a new version of a plane come out and have two fatal crashes within 6 months of each other – and so soon after the plane first entered commercial operations. Yet it took days until the US and Canada grounded the plane for safety reasons as it became apparent there were similarities in the accidents. With more than 300 dead, all within the first few minutes of their flights, we just don't seem very worried about flying. Don't get me wrong, air travel is very safe – but this particular situation is troubling and there is a need to ensure the root cause of this failure is identified and addressed. Early reports state that a new system that may be implicated in the accidents was not properly rolled out to pilots in order to save airlines money. I travel a lot and I am very concerned about flying on this type of aircraft until a solution is identified that ensures this particular issue will never happen again. But somehow, when fears can in fact be justified, we find a way to manage them. In this case it is essential for Boeing and the industry to act decisively to not squander this very important public trust.

So, what is the point of this discussion? We know that fear can be a powerful driver in our behaviours. What is not always clear is why we choose to fear things to the point of trauma when they are proven safe, yet don't get too worried about things that should actually be of concern. As a result, it is not enough to fight fear with facts. Fear is a strong emotion. The

facts may be clear but all you need is just a bit of doubt and the fear remains. And it is easy for those opposed to something to cause doubt.

As asked in this interesting article on the measles issue, should we hijack the fear monger's method and use fear to push back on untrue claims? Clearly what is driving the strong push to finally silence anti-vaxxers is the resurgence of this disease and the potential impact to children and young adults who may get it. In other words, once we see the disease touching those close to us, a mostly forgotten childhood disease becomes real again and the option of vaccinating becomes less scary than the fear of getting sick. We see young adults getting vaccinated because they are worried about getting measles overcoming their parents' earlier concerns that caused them to withhold vaccination when they were children. Is it time to use frightening imagery to push the factual side of the argument? As stated in this article, *"A baby in the midst of a whooping cough (pertussis) fit will appear to cry without making a sound. Her mouth will be open as she tries to cough to clear the mucus from her narrowed airway, but if she's really struggling, nothing will happen. Her lips and tongue might turn blue. She could seize. When the fit is finally over, she'll vomit. It's absolutely terrifying to watch (and no doubt, to experience), and precisely the type of picture public health organizations need to paint to counter anti-vaccination propaganda."*

Getting back to the nuclear industry, it is time to accept that taking the high ground and fighting fear with facts alone is just not enough. We are in an industry where fear abounds. An article this week, on the 40th anniversary of the Three Mile Island accident looks at just how frightened we were at the time. While this may be historically interesting, the real question is why we think about this 40 years on when the accident turned out to have **no impact on public health.** 40

years is a long time to focus on a non event. A new poll in the US shows the public evenly split on the issue of support for nuclear power (49% in favour, 49% opposed), but of more interest, is the fact that 49% are also concerned with nuclear safety, or in other words, it is fear that continues to drive opposition to the technology.

Even more so, the people in Germany today are investing hundreds of billions of dollars in decarbonizing the German economy through its Energiewende; yet they seem to be comfortable replacing low carbon nuclear plants with new coal plants greatly impacting their ability to achieve their climate goals. So, what does this say? Clearly Germans believe nuclear power is far more frightening than climate change. Again, this is not consistent with the facts, but the public remains supportive.

The reality is, if we are afraid of something, we need a strong reason to change our views. Just telling someone there is no need to be afraid by explaining the facts is going to fall on deaf ears. What is needed to revisit one's fear is understanding that there is a greater issue at hand, a bigger problem to solve. Only then may we be willing to reconsider our long-held beliefs. Not because we suddenly believe the facts, but rather because we finally feel a need to actually listen to them to solve a greater concern. It is easy to worry about vaccines when you've never heard of anyone getting measles, and for sure never dying of it. But when you see your neighbour's child seriously ill, it may be time to

reconsider.

<https://www.youtube.com/watch?v=Z-MZjeBWilQ&feature=youtu.be>
The wind blows and the lights come on
Over the last 40 years the nuclear industry has been worn down and tends to respond to criticism defensively. Well, maybe it is time to do something different and go on the offensive. Of course, as opposed to those on the other side, we should always tell the truth (although those against scientifically supported truths always have an easier time as they see no need to tell the truth, only to frighten). For example, it is not enough to say nuclear can help in the fight against climate change because the public already believes a viable solution is available with renewables. We also need to show that 100% renewables is simply not feasible. Only then can we get the attention required to consider alternatives. Here is a recent ad by citi bank about its support for clean energy – look at the last part where the lights all go on as a result of this new off shore wind farm. Should we be making ads that show the lights going out when the wind stops blowing as it does two thirds of the time, showing the need for reliable 24/7 clean energy?

How do we decide what we are afraid of and what we are not? The time has come to divert some of the research money going into the continued improvement in nuclear safety to better understand the psychology of fear and how it impacts views on this clean safe energy source. Then we need to better address these concerns by showing how this technology can reduce societal fears making all our lives better. One thing is for

sure, the facts are on our side, but we need to understand that this is simply not enough. Only then can we really try and change attitudes.

Addendum (added April 7): See this video by BP that shows that gas is there to meet the need in the "*off chance the wind ever stops blowing here*" making it seem that wind is the primary source of energy. Of course we know that it is actually in the **absolute certainty** the wind doesn't blow more than half the time, gas will fill in the gaps.

<https://youtu.be/C5Jj2wD3GjE>