Bret and Heather 87th DarkHorse Podcast Livestream\_ We Must ...

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**SPEAKERS**

Bret, Heather

**Bret** 00:11

Hey folks, welcome to the Dark Horse podcast special midweek live stream. Number 87. If I'm correct in my counting, you are correct. I am correct. All right. We have a lot planned for today. I know many people are interested to see what we have to say about the Collette article that was published. Before we get to that let us talk announcements,

**Heather** 00:34

announcements. We are streaming on both YouTube and Odyssey today we encourage everyone to go to the Odyssey stream if you have the capacity to and if it's if it's working well for you. But because, in large part what we are doing today is responding to a critique such as it was, we should feel a little bit generous. We feel that this is actually keeping within the community guidelines such as

**Bret** 01:02

they are yes the preposterous community guidelines yes nonetheless.

**Heather** 01:06

So that's that's what we're doing. We do encourage you to subscribe to both to all four of our channels actually our main channel Brett Weinstein, on both YouTube and Odyssey and the Dark Horse podcast clips channel on both on both places. You can find stuff that we've got like those Goliath t shirts we introduced last week at store Dark Horse podcast.org. You can ask ask questions now for the live q&a is that follow? shortly after we finish these main live streams by going to Dark Horse submissions.com there should be a link in the video description here. And that allows us not to go through YouTube and have them take their predatory cuts. I don't even know if we'd make any money now since we're still demonetised there. But that allows us to go that way and also allows you a few more features, please consider joining one or both of our Patreon. So you get Darkhorse membership at mine, which offers you access to a once monthly to our private q&a where the numbers are small enough that we get to interact with the people in chat. We never see the chat during these live streams. Of course, and and Brett has two smaller conversations with with patrons at some higher dollar amounts on his we don't have any ads today. And we are going to be yes, we are going to be rebutting that Colette article and providing some of the evidence that we feel like they either left out when they we know that they either left out or willfully misconstrued and what they wrote. And we might have time to talk about a few other little things around COVID, such as a new paper out about underlying conditions, which is a drum I've been beating a lot. The the idea that actually just because you're in an age group, that seems like it's at high risk does not mean that your fate is sealed. If you can do something about your health, in advance of getting exposed, tried to get exposed. And if you do get exposed, anything that you can do to be maximally healthy actually directly affects outcomes from COVID. And of course, a wide variety of other diseases as well. And then in keeping with what has now become our pattern we are now in week five of reading an excerpt from our forthcoming book every week, we started with the introduction. We're now on chapter four, which just happens to be the chapter called medicine. So we are going to finish with a short excerpt from the chapter on medicine, which many of you will not be surprised to hear is actually completely coincident with the kinds of arguments we've been making on this live stream and that we are going to be making here today.

**Bret** 03:39

Isn't that fortuitous? Isn't that for us? All right. So let me put places in context. And let me first say something to people who perhaps have not read the article in Colette, it is not necessary that you have read that article. This should be a very logical live stream to follow, you can always go back and read that article if you want to understand exactly what we were responding to. But our hope here is not to go point by point. In fact, I should say that the reason that this live stream is not happening on a Saturday is that I was traveling and I have not been home for 24 consecutive hours since before the Colette article was published. So there is going to be a written response to the Colette article. It is not going to be emerging today. But ASAP. But what we are going to do here is try to place these arguments in a context where their actual logical implication will be unmistakable. And when you see the errors that have been made in that Colette article, and then you correct them in your mind, you will see logically where one has to end up on these essential questions. So that's what you're looking for is we're going to show you what they've done incorrectly on a couple of very central points and then once you see what correct logic suggests you You will understand why we are somewhere very different in this pandemic than most would have you believe. All right, I want to start though, with something unrelated to COVID, pandemic treatments, anything of that nature. And it goes back to something that I realized in high school, I realized in high school, my family, as your family had rules, very strict rules about television, it was understood back in the 70s, and 80s, that there was something not very good for you about television, and therefore, families like ours put limits on what you could watch. But there were also exceptions to those limits in our household, and I assume in your household was an exception for public broadcasting, for example. So you know, we watched a lot of pbs documentaries and things like that, sometimes the news hour. But in any case, what this caused me to realize was that, although people talked about it, they would literally use phrases like the idiot box. But the problem was, it's it's the it's not the box, it's the business model. And I actually started using that phrase to myself, it's not the box, it's the business model. And it's not the box, it's the business model actually was born out at the point that HBO started delivering high quality, novel content. And it turned out that the audience wasn't foolish, and that it would be very interested in seeing long form content of high quality, which we've all now become familiar with. So what I want to say is, it's not the box, it's the business model is an important recognition that there are lots of things that come at us in one form or another, and depending upon the form, we should look at them very differently. And in fact, you can see the same thing with respect to our cell phones, our cell phones are capable of doing marvelous things, letting you navigate some city, you don't know as if you were native to it. But we also all recognize that these things are designed to be addictive, and to keep us doing things that aren't necessarily good for us. So again, it's not the box, it's the business model. That's what makes your cell phone so dangerous to you can make the same argument for pornography. I consider myself very sex positive, I like sex, right? Who doesn't. On the other hand, when you look at what comes at you through porn, that is very misinformed ative about what sexual behavior is actually like. And in fact, it's Miss informative in a way that is targeted to getting people to become addicted to the content, look at this producers content rather than that produces. In other words, it's part of an economic competition, in which you are actually the product, you're sitting through these things. buying them presumably, is the the targeted behavior. So that is not an indictment of erotic content. It is an indictment of the business model that delivers porn, right. And so again, not the box, it's the business model. And the point that I'm trying to make here is that we see the same dynamic playing out now with the vaccines and pharmaceuticals that we are being told that we must tech. And the point is, it is reasonable to understand vaccines and pharmaceuticals as useful tools in improving and protecting human health. But there is something about the business model that is delivering these things. Now that audit cause even those of us who are cautiously welcoming of these things, to look with some skepticism at the current versions, because the business models are in fact, quite remarkable and not dissimilar from what has happened to our phones and our

**Bret** 08:35

and our televisions. So in our household, that is this household here, you and I are ordinarily pretty enthusiastic about vaccination. And we're actually pretty skeptical of synthetic pills. And there's a reason for this, there's a logical reason. And the reason is that vaccines that is to say, the original versions of vaccines are a very elegant mechanism for doing something that is clearly tremendously beneficial for health, right, the way a vaccine typically works is it provides an advanced warning to the immune system of a pathogen it has not yet seen so it doesn't have to learn the formula for fighting that pathogen. When it encounters the disease, it can learn it in advance and then fend off the disease, the way you would fend off a disease you had already had. That's very as a minimal intervention. Very elegant. And basically the point is most of what it is, is your own endogenous ability to learn the formula of some hostile agent and to do so well.

**Heather** 09:36

So that's you providing information to a system that you already have on board,

**Bret** 09:40

right it's a little bit like a house a wanted poster that you might mail to a post office in some town that hasn't yet seen this criminal right it's a it's an advanced warning, very elegant and return on investment has been spectacular for humanity. So I will say, I have personally lectured many times to my class. on not only the way vaccines work, but on the history of vaccines, and there's the, you know, in the western Edward Jenner story. And then there's also other stories from around the world where other populations have discovered the same property and have have used it. So I'm proudly enthusiastic about the idea of vaccines. And that shows in my pedagogical history, you wrote a sentence into our book two years ago, you happen to have it on hand.

**Heather** 10:28

Let me say I didn't know you were going to call me up on that.

**Bret** 10:32

While you were looking at what the sentence is, you wrote a sentence that was pointing out this very same thing. So from your perspective, you were arguing that vaccines are infected a tremendous boon to human health. Yeah,

**Heather** 10:46

this is something again, I just, I happen to be prepared to be tweeting this this week, this sentence, from exactly the same chapter will be reading from at the end of this episode, even the great victories of Western medicine, surgery, antibiotics, and vaccines have been over extrapolated, applied where they shouldn't be, when all you have is a knife, a pill and a shot, the whole world looks as though it would benefit from being cut and medicated.

**Bret** 11:10

All right. And the flip side of this is in our family, we actually have a kind of concern about pharmaceutical cuticles very generally. And this arises from the fact that in my graduate work, as many of you who are longtime fans of the podcast will know, my graduate work I happened on to what I believe is a flaw in the drug safety system, I published this flaw. And the flaw basically amounts to the mice that are often used for things like drug safety testing, and other experiments having been accidentally evolutionarily modified by the breeding protocol that is used to produce them, so that their telomeres, which are these repetitive sequences at the ends of chromosomes have been elongated tremendously. And this has potentially very large impacts, effectively, these animals have a capacity to repair their tissues so that if you poison them, but you don't outright kill them, they actually have an extremely good capacity to fix themselves, whereas we have a limited capacity. So there are bad models. Now, that has caused us over the many years. That work was published in 2002. In the many years since you and I have a kind of uneasy relationship when we open the medicine cabinet, because we know that virtually every drug in there was tested against mice that are very, very capable of dealing with toxicity. And so we don't know. And there are lots of instances in which drugs have shown themselves to be toxic after they were proven or proven safe in safety testing. So Vioxx, fen fen, Gleevec, cell, Dane, erythromycin, all of the N sets, all of these drugs have been shown to be hazardous at one level or another. So ordinarily, in this household, we are very pro vaccine. And we are a bit skeptical of pills, a lot skeptical, a lot skeptical of pills, because we know that even if you know that the hazard is there, you don't know which pills it applies to, and in what way, all right. This situation, that is to say, the COVID pandemic has put the shoe on the other foot, that is to say, in this case, we find ourselves quite skeptical of these vaccines, and we find ourselves actually favorably looking upon a pill. And the reason for that is that in this case, we're not dealing with classic vaccines that function in that super elegant way. We're dealing with vaccines that are actually extremely novel. Now, they are very promising. This is an amazing, interesting platform that mRNA vaccines in particular, the dino vector, DNA vaccine, these are things that potentially if we can figure out how to do this well and safely are potentially a huge boon to humanity. But at the moment, we're dealing with brand new technologies, and they are brand new technologies that have in multiple ways shown themselves not to function the way their designers had intended. As we've discussed on the podcast before, the vaccines don't stay at the injection site in the way they are hoped. The spike protein on which they are based, is toxic, and the spike protein which was modified, which was designed by those who made the vaccines to stick in the cell membrane and to remain there for the immune system to see it and respond to it. In many cases, breaks free and floats around the body. That's three. Turns out there's another apparent design failure that we've seen that could you put up the nature paper on the dosage so this is a just emerging I think it's July 9 nature article that says that the Madonna vaccine is actually functional in terms of generating an immune response at a quarter the dose so to whatever extent there might be risk involved with the vaccine Potentially it could have been greatly reduced by just diminishing the amount of, of the active ingredients.

**Heather** 15:08

So this is the first time I've seen this the subtitle of this news it's it's a news article within the scientific journal Nature, the subtitle of which is results hint that dose stretching could help to address the world's acute vaccine shortage. It seems to me that results hint the dose stretching could also help to address any side effects of of the application of this vaccine, right? Well,

**Bret** 15:29

and it's actually a classic, if you think about it, that presentation flips the obvious interpretation on its head, and turns it into a silver lining. But without going through the hoops. Maybe people have been getting more of this than they need phase. But in any case, so what we know is that these vaccines are remarkable. We also know that they do not function as intended in multiple regards. And that ought to have us being very cautious with respect to things like the signal that they are not doing what they are hoped to do. With all that said, it is also the case that the perverse incentives are worse than normal in this circumstance. So that is to say, under normal circumstances, there are incentives that work in the public's interest. In other words, a pharmaceutical company has an interest in producing a product that's really very good because a product that's really very good will cause doctors to prescribe it and patients to get it and it will cause credit to go to the company and all of that that's a good incentive. But a perverse incentive is one where the company's interest is not necessarily in the interest of the patient, or society. And so anyway, there are unusual, perverse incentives here. For one thing, we like it or not have a big emerging market. COVID is causing lots and lots of problems and both epidemiologically. And with respect to the well being of patients, there is a lot of new stuff to be done. And so that big emerging market may look a different way to a company that may be able to exploit it profitably than it does to society that might like to shut down that big emerging market. Do we know what effect that has? We don't, but it is a question worth asking. We are also in a crisis mentality because of the severe impact of COVID on planet Earth at crisis mentality affects the way people think they may not be as clear headed about what's really in their interest. And most conspicuously, we've got immunity from liability, which is we don't Well, these companies that make the vaccines have immunity from liability. So to the extent that one of the things that aligns the incentives of patients with producers of pharmaceuticals is the threat that if a pharmaceutical isn't good for you that they will get sued. To the extent that that has been taken off the table, that obviously creates an increase in the hazard to patients that companies won't take those risks seriously enough. And at the same time, the perverse incentives on the one side are greater than normal, we also have the best drug available, and maybe it's even to drugs, which we will get back to but the best drug available seems to be safer than normal, because it isn't new. And it's been administered so many times that we actually know a lot about its impact on people. So to the extent that there might be flaws in the drug safety system, or whatever it is, we have a huge amount of data on what happens in actual human patients. And I would also point out this is no, it's not an absolute protection. But the fact that the drug in question ivermectin, comes from soil bacteria, it's not a completely synthetic molecule means that it is likely to be similar to things that one's ancestors have encountered before. And there's therefore a good chance that the body has a reasonably elegant way of dealing with it rather than using some mechanism. That's that's not so great. Okay,

**Heather** 18:55

there are lots of exceptions to that course. But all else being equal, trust the thing from nature sooner than the thing from lab understanding that sometimes nature is indeed exactly out to kill you.

**Bret** 19:07

Yes, right. cyanide for example, is a natural product that is a very good non competitive inhibitor of respiratory enzymes and very frightened for that reason. Okay, so all that said, we now need to address the content of the Colette article by Yuri Dagon and Claire berlinski. And the way to understand this is to take something that I've been saying various different places. Those who have watched the podcast before will almost certainly have heard me say it before, but to really put it in context. It is unfortunate for us that ivermectin is one drug. And the reason that it's unfortunate is because it has two different impacts. And one needs to be very good, something that the Collette article was not at all but the one needs to be very good at separating whether one is talking about prophylactic impact, that means its ability to present to prevent the contraction of, of COVID-19 versus the treatment that is to say, alleviating the symptoms. And interestingly, we see the same phenomenon. On the vaccine side, we're very often we will be told the vaccines are highly effective. And then when one talks about the fact that they are imperfect, that's a technical term, then we the fallback position is yes, but they are excellent at preventing hospitalization and death, which they may well be but the point is, preventing people from contracting the disease is a very different phenomenon than alleviating the worst symptoms of the disease.

**Heather** 20:38

And it's a very different language than people use about normal vaccines. Yes, it is. sterilizing immunity is the standard that without knowing those terms, most people assume when they hear about vaccination, and it seems that these vaccines do not meet that standard, at least as well as we would

**Bret** 20:57

hope right, which has impacts on a question that we are going to argue is the central question, inescapably once you have seen it, it is admittedly a bit obscure until you do but let us get there. And in fact, we're there. The issue is this. We have two branches of a decision tree we have two branches we can go down one branch or we can go down the other branch and they lead to very different worlds. Okay, we get the world you're talking about now, yes, we collectively humanity, humanity could drive SARS covi to to extinction. All right, now if we drive SARS kobie to extinction, then the amount of loss gargantuan as it has been, is finite, it will come to an end right in the same way that it has for SARS, kelbyone, or SARS, COVID but saris curvy one, it's extinct as far as we know. And the point is, that is a desirable goal, because it means no further harm comes and it means that the amount of harm is therefore calculable. If we do not drive SARS, COVID, to to extinction, the amount of harm that comes in the form of years of life lost, health degraded, and human suffering both of those left behind when someone dies and the suffering of those who contract the disease is incalculable. If this becomes a permanent fellow traveler, if this becomes endemic to humanity, then anybody can realize, well, actually, there's no way to calculate how much the cost of this virus will be to humans, it's indefinitely large. And so our argument is and has been, we must put everything we can into driving SARS, kobie to to extinction is possible that we can't get there. But we have to try. And in fact, this isn't even just about us, the current living people of Earth, this is about us doing what we must do our obligation to future people of Earth, so that they don't have to be dealing with the consequences of this virus, right? two different worlds. And the question is, if we can drive stars COBie to to extinction, we have an obligation to do everything in our power to make that happen, because the costs are so very large if we fail to do it. Okay, so sorry, I've lost my place. So there is some conflict of interest, therefore, potentially, between cures and treatments or prophylactics that are highly effective, and treatments, and I would ask people to run themselves through a thought experiment. What do people imagine will happen when the fiduciary responsibility of a pharmaceutical corporation is in conflict with patient wellbeing? Or with public health, or both? It's a simple question. fiduciary responsibility is a legal fact, these people who run these corporations have a fiduciary responsibility to their shareholders, that is different than them having a moral responsibility to their patients. And that is different still from the moral obligation that they have to humanity, those who live and those who will ultimately live. And the point is, there is no magic formula by which these things all align. So you have to ask yourself the question, What do you expect somebody in a position of power or some group in a position of power the board of directors inside one of these corporations, what do you expect it to do when its shareholders interests are in conflict with the interests of its patients or of humanity and humanity and its patients are not synonymous here because realize, there are many people on earth who are not within reach of these vaccines, and so they may be infected with SARS Coby to down the line because of some decision made inside of a corporation so they are not patients if they are not touched by the product of the corporation, but they do suffer consequences. of how we behave. If we, for example, fumble the ball and SARS Coby to remains circulating around Planet Earth, then all of the people who, who come down with it in the future are actually victims of our bad choosing. And so we have to work very hard not to do that. And I think the thought experiment, if you do it honestly, you will realize that there is a genuine problem, there is inherently no tsunami between patient well being and shareholder well being because shareholder well being as a financial matter. And we all understand all adults know that there are times when one makes money at the expense of other people. So we've seen that many times. And we've seen it pharmaceutically frequently.

**Heather** 25:43

And just just to rephrase slightly, this requires neither evil, nor conspiracy to be true. That's not precluding the possibility of evil or conspiracy. But it certainly doesn't require either thing. There is simply a conflict of fiduciary interest, potentially, which will have will potentially force corporations hands, so to speak metaphorical hands into making decisions that are bad for all the rest of us.

**Bret** 26:15

Yeah, in fact, I think it was 2012, I gave a TEDx talk called the personal responsibility vortex. And I would call people's attention, I did a little section in there, I worked with an artist, former student of ours, Steve Bylsma. And basically the idea was if you if you do a thought experiment, and you have three types of corporations at the beginning of the thought experiment, one type will do the right thing, irrespective of its effect on profitability, one of them will do the profitable thing, irrespective of the harm that flows from it. And then some third category is more realistic. It's some balance between focus on profit and limit on what the corporation is willing to do. And then you start iterating. The competition between these things, you find the do gooder Corporation goes extinct. And you find that the corporation that is balanced at the beginning of this experiment actually evolves towards ruthlessness in order to compete with the corporation that always does the most profitable thing

**Heather** 27:14

under the business model that does not restrict the behavior of set corporations. Exactly. In a totally unregulated market. This is what will happen,

**Bret** 27:21

right, a totally unregulated market now, astute observers will be thinking, but this isn't a totally unregulated market. And that's where we're gonna end up talking about regulatory capture, we will return we will return to that. Let us just say, in this case, we can recognize that, at least in principle, somebody's looking at if let's imagine you're not even in the pharmaceutical industry, you're just trying to imagine what what these investments might be worth, the pharmaceutical industry might be worth a very different amount in light of a permanent crisis, one that was constantly producing opportunities to address the next version of COVID as the pandemic evolves, right, then if the pandemic were to come to an end as a result of wise policy and high quality pharmaceuticals, or whatever else, okay, that's just a simple fact, it might be true, that the industry is worth a very different amount in those, you know, down the two different branches of the decision tree. And so I would remind people that economically speaking, it is unfortunately viable for an entity, a corporation or an industry to destroy trillions in the pursuit of billions. And that is something that we those whose well being will be destroyed in such a process must counteract, we must recognize that that can happen and we must not let it happen. So anyway, that's a that's a hazard. Okay. So, in light of the fact that we have this thought experiment, maybe let's look briefly into the question of what is happening in the environment in which we sort out how we are to behave the academic environment in which the papers are produced the regulatory environment, and we happen to have a marvelous artifact here.

**Heather** 29:17

Yeah, an artifact also known as a book a book Yeah, sorry. Bad pharma. How drug companies mislead doctors and harm patients, by Ben Goldacre, who's a medical doctor and

**Bret** 29:28

I should say, some of you will be familiar with Ben Goldacre from a TED talk that he gave called I think, it is called what doctors don't know about the drugs they prescribe. Anyway, it's a very good TED Talk recommended.

**Heather** 29:41

So this is an extraordinary book. It's a terrifying book, and it's from 2013. And I'm just going to read a paragraph from the introduction. So to be clear, this whole book is about meticulously defending every assertion in the paragraph that follows. Drugs are tested by the people who matter Factor them in poorly designed to trials on hopelessly small numbers of weird unrepresentative patients and analyze using techniques which are flawed by design in such a way that they exaggerate the benefits of treatments. Unsurprisingly, these trials tend to produce results that favor the manufacturer. When trials throw up results the companies don't like they are perfectly entitled to hide them from doctors and patients. So we only ever see a distorted picture of any drugs true effects. Regulators see most of the trial data but only from early on in the drugs life. And even then they don't give this data to doctors or patients or even to other parts of government. This distorted evidence is then communicated and applied in a distorted fashion. In their 40 years of practice, after leaving medical school doctors hear about what works through ad hoc oral traditions, from sales reps, colleagues or journals. But those colleagues can be in the pay of drug companies often undisclosed, and the journals are too and so are the patient groups. And finally, academic papers, which everyone thinks of as objective are often covertly planned and written by people who work directly for the companies. Without disclosure. Sometimes whole academic journals are even owned outright by one drug company. Aside from all this, for several of the most important enduring problems in medicine, we have no idea what the best treatment is, because it is not in anyone's financial interest to conduct any trials at all. These are ongoing problems. And although people have claimed to fix many of them, for the most part, they have failed. So all these problems persist, but worse than ever, because now people can pretend that everything is fine. after all.

**Bret** 31:26

What is the publication date on that? 2013 2013? So this is six plus years prior to COVID-19. Now, that's, that's a description of the normal state.

**Heather** 31:40

The current state the new normal as of 2013.

**Bret** 31:44

Yes, the unfortunate, yeah, new normal state as of 2013. In this case, we have extra elements, and you have to ask yourself, what will their effect be on what sounds like the normal corruption of the regulatory and academic structures surrounding pharmaceuticals? Yeah,

**Heather** 32:01

and it's, it's those two things. So you know, savvy, people will have said, and I've seen many responses to, you know, to, you know, incredulous claims, I think there's a conspiracy going on. And like I said, none of this precludes the possibility of a conspiracy, but it requires none. And so people we will say, and others will say regulatory capture, it is well known, well documented, ubiquitous. But what people talk about less is the academic capture, which is part of the regulatory capture, and is very well documented there. We've been talking about since we've been in these live streams. And it's part of why we are critical of things like the peer review process, even though the process itself is is in place precisely to allow only the best research to get through. But of course, it doesn't always work like that. Well, it doesn't,

**Bret** 32:52

yes, it doesn't. And, you know, let's put it this way that you could arrange a peer review that would work but a blind peer review like this is destined to fail, it is destined to be abused. So anyway, we can we can return to that another time. But in any case, we have regulatory capture, which is pretty well known people have heard that term academic capture, which may be a new term, and people are not nearly so aware that it is happening and what appears to be

**Heather** 33:20

actually just just one side point, you know, I think, because of the way that we became public figures, it is it has been imagined, and even by many people who, who we are, we are friends with them, we see eye to eye on a lot of things, that the part of academia that has gone astray is only over in fill in the blank studies and yo and grievance studies spaces and in, you know, the rise of administrators who don't know anything, and you know, creation of lots of those positions, and all and that all is true and deeply problematic. And we're seeing the downstream effects of all of that spread out into the media and the schools and the government. And all of this is true. But we have been talking about for much longer, in fact, than we were focused on the problem with effectively the downstream effects of post modernism in academia, the problem of the money in big science, which is something that we talked about a few livestream episodes ago, and that academic capture effectively, in which you have these unholy alliances between either the government granting agencies or the corporate granting agencies such that you have alliances that create perverse incentives to only produce some results is skewing not just what we think to be true, but how well people can actually think and that combination means that the vast majority of people out there are not given data with which to assess things and weren't given educations with which they could then use to assess what they don't know.

**Bret** 34:48

Yes, and crucially here so we've seen capture go from the narrow regulatory to increased academic basically a steering of what So looks to the outside, like high quality thought, right? So you get false consensus around things that aren't true. But we are also seeing quite predictably, if you think about it, we are also seeing the steering of the public conversation. Why? Because the public conversation threatens to reveal the problem. If the academic conversation can't, then the public conversation can reveal the corruption of the academic conversation, etc. And that's a serious problem. So what we are seeing are organized campaigns to intervene in public discussions. And even more disturbingly, we are seeing the platforms participate in this by hard coding into their community guidelines, for example, what evidence you can report on right? If you have if the evidence says x, and you have to report on the faulty conclusion, why more positively in order to even mention that X has been demonstrated? That's obvious. That's that's like, the social media platforms intervening in, you know, sense making itself.

**Heather** 36:04

So that's that's certainly true. But I think the point that I was trying to make, which ties it back to this, Dagon, and berlinski, and Dagon piece and quiet this last week, is the number of places in that article that are journalistically or scientifically simply just flat out wrong. Yeah, is extraordinary. And the the journalistic stuff, just like the basic fact checking with regard to who's who and when what happened, and who said what, you know, what shouldn't have passed, like high school journalism? Yeah, the cya. And we're not going to do any of that today. And we haven't even written it really at all into the, into the piece that we're writing either, because it's just I think it's just not worth our time. But it certainly shouldn't have should have been worth the author's and the editors and the publishers time, because that's irresponsible. At the very least, the scientific errors are extraordinary at a level that I wasn't expecting. You know, we as as has been said, on Twitter, we need better skeptics, all of us do. But we do, you know, we need we need people to push back with integrity, and rigor, and honor and care. And you know, we probably won't get through most of most of these today. And a lot of them will be in the written response that aren't what we talked about today. But the number of times that they cite a paper that then actually says either not at all what they said or actually the opposite, is extraordinary. And you know, that's actually what peer review is for. So where were their peers here? So we are acting like their peers by giving them the pushback that they that apparently no one on no team vaccinate everyone is on is giving them Why not? Why are none of those people's peers capable? I doubt it. Well, why aren't they speaking?

**Bret** 37:49

So I don't know whether we should even be down this road at all. But here's the problem. I know, I don't know, Claire berlinski. at all, she showed up on my radar when she requested, would I respond to some responsible counter arguments? And I said yes, because she approached in what seemed like good faith, and then she immediately behaved unethically three times in a row. So I don't know whether this is that she's blinded by what she thinks is at stake in the vaccines, or this is the way she normally behaves. But I just can't say, in your daikons case, it's different. I've interacted with your dad again, and I believe your Dagan is highly capable. And that frankly, he's done the world of service over in the lab like hypothesis space, right? His work was excellent there. And so the fact is somebody who is capable of excellent work like that doing work that is this bad, and we are not going to go point by point because I think everything would get lost if we did for one thing. Heather and I was out of town. But on the first night after the thing emerged, we went through it and it was virtually every paragraph had at least one major flaw and but nonetheless, we don't need to do that in order for you to see how bad the quality of arguments are. And if you were to go through just even the factual claims of who said what and where it was said the number of errors is staggering, given the amount of text. Alright, so let us move on to the core issue that we are going to focus on and as we've said, we are going to separate cleanly the issue of prophylaxis that is the prevention of the contraction of COVID from the issue of treatment.

**Heather** 39:34

Can I I know you are have places you're going but I think this actually may be a place to mention that the authors of the licola article don't seem to know what prophylaxis means. May I may I? Yeah. So somewhere in its lower down in the, in the written part of so here we go. This is just a parrot just one paragraph from there. The collect piece How does Evidence for the prophylactic efficacy of ivermectin stacked up against the vaccines, it's not even close. Remember, we don't yet know that the drug provides any significant benefit. A high quality study published in JAMA found that in a randomized clinical trial that included 476 patients with mild COVID-19. Quote, a five day course of ivermectin compared with placebo, did not significantly improved the time to resolution of symptoms. This is this is their paragraph about the prophylactic efficacy of ivermectin. And the study they cite is about treatment, prophylaxis and treatment are different. And if you actually don't even know that you have no business, to critiquing arguments, which are looking at the literature and using evolutionary theory and logic and careful analysis to assess what the benefits might be, if you can't even tell the difference between prophylaxis and treatment.

**Bret** 40:48

Yeah, so they absolutely screw up. And somehow it got through the editing process, they screw up that that fundamental distinction, what's more, they cherry pick, and they use a study that uses time to resolution of symptoms as a measure. Now, it's hard to imagine a more noisy measure because think about the last time you had a cold and ask yourself, how you would nail down the exact moment at which it was completely gone. Right? That's a very difficult calculation to do because of the way these things get better right, you feel 80% better. But in any case, so let us go to the the issue that we are going to argue is absolutely central that they have completely botched and having botched it. When you see how the logic correctly works, you'll understand why their entire argument must be wrong. Okay. So this surrounds the Argentina study by Hector coveo Coronavirus, Carter veyo and several other authors so cariah at all. And in this study, there were approximately there were 1200. You want to describe it? Yeah.

**Heather** 42:01

So there was a there was a preliminary study first in which there were I don't remember what the numbers were, but not very many healthcare workers and and, and they put them into into groups, people self selected into groups. This is neither this is you know, far from blind. And they gave some of them a dose of regular dosage of ivermectin and carageenan. And that was four times a day and some of them none. And everyone had PP, everyone had personal protective equipment on them. And the results were so staggeringly promising with regard to the ivermectin and carageenan. So that they then did the bigger study, which had 1100 95 healthcare workers in Argentina, in which 788, about two thirds of them were put on this combination of ivermectin and carageenan. difference being in the main study in 11 195 people study, the ivermectin was a weekly dose, it's actually exactly the same protocol that the FLC cc has put up as what is it called the IMF math plus protocol I think it's like two Meg's per kilogram body weight two milligrams

**Bret** 43:08

point two milligrams per kilogram body weight.

**Heather** 43:13

Okay, I'm not I don't I'm not sure about that. And they were then then there's they've got four major hospitals, Argentina, and they still given the care again and four times daily, the ivermectin once a week, and what did they find? They found from each of those four hospitals combining their 1100 95 total healthcare workers. Of the two thirds of them who were on the ivermectin carageenan as prophylaxis, not a single person came down with COVID. And of those not on the prophylaxis, which again included ivermectin, carageenan, 58% or 237 of that 407. God sec.

**Bret** 43:49

So that is an amazing result, an amazing result. But we haven't explained what carageenan is. And both for completeness, and because it's charming, I think we need to hear again and charming. Well think about it this way. I mean, forgive the aside, but carageenan is a derivative of seaweed. It is actually widely used in a great many products like a thickener, and a lot of processed food and stuff. But it also turns out to have some antiviral properties, which are pretty interesting. Anyway, it's, I think it's charming because, by the way, I don't know that this is a very serious topic. And this is a little bit ironic. But ivermectin is derived from a soil bacterium discovered by a Japanese scientist in Japanese soil. And the fact that it is being delivered with seaweed kind of suggests that it's like an ivermectin roll or something like that. No,

**Heather** 44:45

I bet you were gonna say carageenan was discovered but like an orca. Shark is often California

**Bret** 44:49

discovered it many times. But in any case, so what you've got is a seaweed derivative and ivermectin being delivered in the preliminary study. They're being the ivermectin is being done. delivered four times a day or something. And in the final study, the larger study it's being delivered once a week at the standard dosage recommended by the FL CCC. Okay, now, what did berlinski and daegan do with this? And I know that this is vague and because they can deploy this argument on me when I talked to him about this privately long before he and berlinski teamed up on this and so he deployed the same crazy argument on me and I told him it was wrong then but Zack, can you put up that little section

**Bret** 45:34

of the PDF with the highlighted okay and can you put it where we can see it?

**Heather** 45:42

What is this this is the car bio paper.

**Bret** 45:44

This is Dagon and Berlin scope, talking about what their reaction to this prophylactic ivermectin study is, and what they say what URI says is, does this pass the smell test that not a single person who got treated with ivermectin and carageenan came down with COVID. And he says not at all. In the initial phase of the study, the workers who received ivermectin were dosed every four hours for two weeks, we are asked to believe that none of these workers tested positive for SARS COVID to the virus that causes covid 19. During this two week period, we are also asked to accept that none tested positive during the three weeks that followed. Now, this is not a scientific argument. In fact,

**Heather** 46:38

this were true, that would be amazing. But because we already know that amazing can happen. This can't be true, right?

**Bret** 46:44

This is the this is to two problems here. One, as I believe I've heard Richard Dawkins say, incredulity is not an argument uragan I think

**Heather** 46:54

I think his actual framing is a failure of imagination. Failure is not an argument,

**Bret** 46:58

failure of imagination is not an argument. And so what we have here is, as you point out, the result is extraordinary. And therefore it is to be disbelieved, therefore, it is not evidence right now, without any without any exploration of what might have gone wrong in the protocol that could possibly have produced this result. Now, Dagon has gone in two different directions here. In this paper that they published, he appears to be alleging fraud.

**Heather** 47:33

doesn't use the word No, but But does this pass the smell test, we

**Bret** 47:38

are asked to believe we are asked to accept we are like Who are we asked an accusation of fraud? Yeah, who are we asked to believe this by by the authors of the study. And I would actually encourage you, we will post the link to the study. And I would ask you to go look at it. The the methods are very clear. And David's point is we are asked to believe by these authors that these were the results and his claim is they can't possibly be because they're too good. Which is not an argument at all. And to Claire layman, I would point out this appears to be a libel that you are publishing the allegation that this is fraud without the a shred of evidence that that is what is going on. Now on Twitter, Dagon went a different direction. Zack, could you put up his I sent you his tweet, in which he takes me to task for what he says is blinding me. Okay, he says, Yes, at Bret Weinstein. The numbers are fooling you. Because the numbers come from a study that didn't control for patient and researcher bias. Patients knew they were taking ivermectin as did the researchers, and the results show a clear bias. That's why proper studies are double blind. He says Now first of all, proper studies aren't double blind. double blind is an excellent thing when you have the ability to do it. Because it does control for one kind of bias. On the other hand, you're a Dagon, where he has backed away from what he did in he in Berlin skis paper where they appear to be alleging fraud here appears to be alleging the placebo effect. Now, Zack, would you put up before you do, let me just say Yuri Dagon appears to be suffering from a common misconception about the placebo effect. Many people believe that we are capable of simply healing if we believe we have been treated with something effective for the condition that we have. Now I've been interested in this phenomenon since I was a freshman in college. In fact, I wrote a paper on the placebo effect back then I'm not sure how good at paper it was, but I've been interested in the placebo effect ever since. for the following reason. It doesn't make any sense that this would be the case because evolutionarily speaking, health is the product of natural selection arranging for homeostasis, right? When that begins to fail, we are diseased. And if it were simply true that all you had to do was believe yourself to be getting better in order to get better than surely selection would have triggered that without you actually needing to take a pill or have a sham surgery or something like that, right. So it has always struck me as very odd that we make the claim that the placebo effect is highly effective in curing people. And in digging what one finds is, in fact, it isn't that you want to put up actually to show how their screen. So here's this

**Heather** 50:42

is a paper published in the New England, New England Journal of Medicine in 2001. And there are more since then called the plus is the placebo powerless and analysis of clinical trials comparing placebo with no treatment. And just to go right to the punch line in the conclusions what I've got highlighted here, although placebos had no significant effect on objective or binary outcomes, they had possible small benefits in studies with continuous subjective outcomes. And for the treatment of pain, that is, mind over mind, perhaps, but not mind over matter.

**Bret** 51:13

Right. And you know, this makes perfect sense. For one thing, we are all familiar with the fact that if you injure yourself in the middle of an emergency, you may not be able to detect that you are injured until the emergency has passed. And this evolutionarily makes makes perfect sense. Because you may need to continue to do things. And the fact that you may have broken your wrist should be no obstacle to you doing what you need to do next, in order to get out of the burning building or whatever, whatever it is. So of course, pain, pain is an adaptation. And that means that there are times when it's not good for you to feel it, and there are mechanisms that can turn it down. And then there are times when you really need to pay attention to it so you can heal, or you can learn the lesson of what you did wrong, and then it can be turned up. So it makes sense that it would be module aidable. And it therefore is not preposterous that it could be modulated by your impression that you had taken a positive step. But let me just say so in the past, and that's my students will remember lectures on this topic. The point is what doesn't change with placebo, our objective measures like get it take longer for you to die of the cancer that you had, right? those measures don't change. Because if those things were simply changeable by state of mind, they would be changed by state of mind before you ever got around to anybody deciding to medically tricky selection would have gotten their selection would have done enemy in effect health sort of is it does it does whatever it can to make you functional. So in any case, let's just

**Heather** 52:42

there will be those who will say, ah, but that's not what Dagon is saying. And that in that tweet, he's he's arguing that, you know, all else being equal, double blind is better, right? All else being equal. But so you know, what is the risk of having a non blinded study in which the participants know what which group they're in either treatment or control? There was a risk that people will behave differently knowing something, right. And so what seems to be implied in his in in Dagens tweet at you is that those people who are on treatment will behave in other ways so as to protect themselves from COVID. And that couldn't be true, but I can equally well see an argument going the other direction, that those people who are not on the treatment, and know they're not would go out of their way to to avoid COVID. Because they know they're not on this treatment that had such remarkable results in the preliminary trial. Right. So I don't know which way to call that. And I wouldn't want to call it either way, frankly. But the idea that one of those is so clearly the thing and therefore without this being double blind, you can't trust any of it. No, sorry. Although, but I really think that that that tweet is about is is wiggling out from we were claiming fraud because that is what they were doing. That is what

**Bret** 53:58

they were doing. And I we are not doctors, we are also not lawyers. If I had published that I'd take it down because I think Carvalho at all have cause to be quite upset with you. And you have you have defamed them.

**Heather** 54:14

Yeah. Because I mean, frankly, we are asked to believe has nothing to do with double blind or not. Yeah, right. We are asked to believe that the language of Berlin skin Dagon is, is regardless of how you know what the methodology of the study was. We just don't think these results are true.

**Bret** 54:32

Right? Absolutely. And no matter what you do, right, even if there was some behavioral bias I, I think the most likely thing in light of the fact that people chose what group to be in based on the fact that the materials that they were being given had shown great promise in preventing COVID is that those people who felt they were somewhat protected would be somewhat less careful. So it would go in exactly the opposite direction. But regardless, nothing gets you to 100% effect other than an effect or you know fraud for which there is zero evidence. So their allegation is out of place. They haven't you know, they've been cowardly. And they haven't made it out loud. But nonetheless, it's it's a terrible quality argument. They do make one other argument that we're going to engage. You want to put that highlighted screenshot back up. So the Reagan's other favorite argument here has to

**Heather** 55:22

do still with regard to this Argentine Yes, with

**Bret** 55:25

regard to the the Argentina paper, is that it can't possibly have had this effect. And the way your Dagon knows that it can't possibly have had this effect is that the decay rate in the blood of ivermectin is such that the number is way below the threshold of URI Dagens belief for effectiveness. Right. And so because it falls below the daegan threshold, Yuri thinks that it can't have had an effect on their physiology, right? But no, I mean, this isn't a radical argument, because for one thing, it rather assumes that your Dagon knows how it does or doesn't work. And his point is, well, if it works at the beginning of the week, when the levels are high than it has dropped below the threshold, that word could do anything, and people should be catching COVID at the end of the week. Now, the problem is a he hasn't established anything about how it works, we don't know that it's the plasma level, the

**Heather** 56:21

pharmacokinetics are not obvious. And he clearly doesn't know

**Bret** 56:24

he doesn't know them yet, I can probably come up with a dozen mechanisms by which it might work that have nothing to do with concentration, I would point out that for one thing, vaccines work on a basis, that circulating concentration isn't the mechanism, it goes through the immune system. Now I don't believe that that's likely to be what's going on here. But and

**Heather** 56:42

there's abundant other evidence, as we'll get to, with regard to ivermectin against COVID. But even more to the point with ivermectin against all these other disease, it's a disease that's effective against, in which the prophylactic regime is like, once every week or once every month, right? And if the half life of being Yeah, when the blood being 18 hours, is the thing that matters? How is it working in all those other cases? Right? Is it magically a different drug? And all those other cases? No, it's not, I mean, same drug. For one thing, in

**Bret** 57:11

this case, we actually know that it's fat soluble, right? So it may be that it's decreased in the blood, because it's been absorbed into adipose tissue when it gets released on another job to figure it out our job to figure it out. But anyway, that graph is very scientific looking. I will grant your neighbor's very scientific looking graph. And it's a very scientific sounding argument. And in any case,

**Heather** 57:33

yeah, I mean, it does use some words. It sounds sciency.

**Bret** 57:36

Yeah, right. Exactly. Like HalfLife. Right. Yeah. But anyway, enough, razzing Yuri Dagon for his preposterous argument. But the point though, the point of all of this is, if it was, let's say that there was doubt about whether or not ivermectin was effective as a treatment for COVID, okay, now, I don't believe there is so much evidence from so many different studies that it has some effect. And those studies vary a lot. Their protocols ranged from good to lousy in terms of whether they treat early or later all of these things. But let's just say that there was no evidence at all that it was an effective treatment. But let's say that that study of the Argentine Argentine hospitals is accurate or anywhere near accurate, right, what that says is that we have a tool that is actually capable of taking us down the decision tree that leads us to the extinction of this terrible pathogen right. Now, that, um, you know, we don't know whether you have raised issues of whether or not compliance would be good enough to get it to extinction, whether we could organize people enough that they could take it, you know, one doesn't want to be on some drug forever. So, you know, is it possible to get humanity organized enough to, you know, to use this tool in a way that it could actually bring this thing to extinction? I don't know. But the idea that you're going to dismiss the very evidence that suggests that's possible, on the basis that the evidence is too strong to be real. When you have, you haven't pointed to anything in the methodology that's wrong. All you've done is alluded to the fact that the study doesn't take a form that you think would have been best. Yeah, I would also want one last point. This obsession with randomized controlled trials, right, double blind, randomized controlled trials. It imagines that the double blindness of them is the only place where bias can be and therefore the double blindness excludes it. But the point is, there are other places in studies where, you know, for example, the researchers may not know which patients have gotten the drug in which patients were in the control, but they do understand the purpose of the study, right? They're not blind to the purpose of the study. And so to imagine that these things are immune to bias is preposterous. All right. You're gonna say, Well, I

**Heather** 1:00:01

think we won't do nearly as much here as we've written into what the written rebuttal have. But I wanted to just say three other things about the the record of the evidence for ivermectin as prophylaxis. The only other thing that berlinski and Dagon invoke is the Lowry meta analysis. And again, I'm not going to go through all the arguments here on the live stream, but once it's out, we'll post the paper that we put out in in the show notes. They literally their entire takedown of this meta analysis from, it's actually Bryant, but it's often referred to as the larger meta analysis. So the entire takedown is that they cite another paper that says that the larger meta analysis is of critically low quality. So I went and spent some time with that other paper that reports that the Lowery meta analysis of critically low quality and my admittedly non professional opinion is that that paper is of critically low quality itself. It is a it is a report never to be peer reviewed, not just you know, it's a preprint not it's trying to find a publication never to be peer reviewed, effectively grey literature put out by the scientific advisory group of the Alberta Health Services, who are using a tool called the amstar to assessment with which I was previously unfamiliar, which is itself designed not to generate an overall score and it's designed for people who don't have advanced training in epidemiology to allow them to carry out rapid assessments. And it is basically a tool designed to be used for people to do rapid assessments by non experts not to generate an overall score and it is on their say so again, not peer reviewed in any way not expected to be peer reviewed. Their assessment of the Laurie meta analysis as being of critically low quality that Dagon and berlinski have assessed Lowery's paper of being critically low quality that's not scientific in any way and so you know, they feel like it's this killing blow the other killing blow perhaps being that they have called Laurie another virus paper phenomenally insane. Well, this this vitriol and sort of, you know, ad hominem level attack does not actually constitute either evidence or argument. And when when I go back and look at the Lowry paper based on actually the kinds of stuff that amstar two was saying, you know, what should you be thinking about? Yep, you know, Laurie at all are very, very careful about saying that the there are only three papers that have been looking at prophylaxis for ivermectin, ivermectin is prophylaxis against COVID that they thought were of high enough quality to include and they were concerned about the quality of those papers. But they did include them and even so came up with whenever they came up with ivermectin prophylaxis, reduced COVID-19 infection by an average 86% with a 95% confidence interval between 79 and 91%. So, you know, they acknowledge all the flaws in the papers that they are covering and the critique the, the the or half assed critique from the Alberta Health Services, which is the only thing that Dagon and berlinski cite doesn't actually go after the analysis itself. It just goes after the papers in the analysis right

**Bret** 1:03:10

and in fact, is it's personal, phenomenally insane.

**Heather** 1:03:14

Yeah. Which is again, different paper of lorries. But it's,

**Bret** 1:03:17

it's the point is beyond. Yes, it's irresponsible.

**Heather** 1:03:22

And so let me just further to the point, because we've got a lot more to cover. And we're already an hour in here. But ivermectin is prophylaxis, there's at least two and I suspect more but at least two lines of evidence that don't show up anywhere in that Collette piece, right anywhere in the club us. And we've talked about them before here. And they are just very, very briefly remind our regular viewers and listeners and points both to the paper that we'll put out and to our previous episodes, we talked about Evans out of Africa in Episode 80, and out of India and Episode 83. So basically the evidence out of Africa and there are two Yes, peer reviewed papers that independently had this idea and went and tested this hypothesis that given that in Africa, there are a lot of chemo prophylaxis regimes in place that some of which include ivermectin on a regular basis for, for prevention of other diseases, not having anything to do with COVID. It occurred to two different groups of researchers to look at whether or not COVID rates in countries that already have chemo prophylaxis of ivermectin onboard in its people were lower than in those countries in Africa where ivermectin was not part of the chemo prophylactic regimen or they didn't have any chemo prophylactic regimen at all. What did they find? Yes, they found exactly what you will be expecting here, which is that in those countries where people were already on ivermectin, for reasons having nothing to do with COVID, there are much lower rates of COVID. Now, it's, you know, it doesn't satisfy any of the like randomized control type control trials. specificities that we're being asked to require, and maybe That's why it's ignored. But it's evidence. And it's actually really good evidence. And the other thing is the data that we're seeing coming out of largely India, but really, this this data analyst, data scientist, one Jaime, who's I can just show my screen very briefly. There's a whole lot here at one Jaime's site, and give me my screen back for a minute and I'm going to show you just a few of what of the things that he has revealed. So for instance, these are these are just graphs that he's put up on, on Twitter. Here we go. This is from July 9, last 30 days Uttar Pradesh with 17% of the country population this is these are two states in India, with 17% of the country population had 2.5% of the deaths in less than 1% of the cases. Whereas, Maharashtra with 9% of the population had 18% of the cases and 50% of the total deaths. And Uttar Pradesh is has an active regressive ivermectin campaign and Maharashtra and if I may, Zack at my screen back here, Maharashtra does not. But interestingly so you know, in summary, basically, the Indian state with an active ivermectin program had far fewer cases and deaths and expected given its population. And a state with a much less aggressive ivermectin program and really not that much at all, at that point, had far more than was expected given its population. But interestingly, the state of Maharashtra has filed an action with the Mumbai High Court to add ivermectin and vitamin D as prophylaxis for COVID. And the High Court came back and said, Nope, ivermectin is already in there as treatment, therefore, we're not going to change the protocol, which again, you know, like not only bilecki and daegan, but the Mumbai High Court, and you know, presumably people throughout the world are confused about this really fundamental difference between treatment and prophylaxis. And it's killing people, it's going to be costing people's lives. So there are a whole bunch of other Indian states where we see evidence. So here's, here's just, here's just one, this is Karnataka, where the, for those just listening, you see a rise in the COVID cases. And at the point that ivermectin is introduced, it is it is still climbing for a little while, but but it begins to come down. So Zack, if you can just sort of, as soon as I put it up, just put it up for like five seconds, then take it down, cuz I want to show a bunch of these. And this is just from the paper so it's not clean. This is odor conned. With again, cases and fatalities falling after, after the introduction of ivermectin in Goa, we see the same pattern. And, Okay, one more. And then we also see, and I won't go through all of these, but it's not just an Indian states either. We also see the same thing. That's not coming up, right, in Panama and Mexico. And let me see if either these are going to come up neatly. Yeah.

**Heather** 1:08:17

Yeah, in Mexico, the evidence is, is is the same way. So that's just this is a lot of visuals to show you all at once. But again, we'll link to these and your why. Why are Why do we pay no attention to these sorts of data? The second, the second is a data analyst who is looking at publicly available data and putting it onto graphs. And most trained scientists aren't going to think to go there. But in the case of the Africa, findings, those are those are out there in the scientific literature, there are two papers or two peer reviewed papers published in the scientific literature finding independently, that in those countries that already had prophylaxis of ivermectin onboard in its population, case rates of COVID. Were lower. Okay, why? Why no mention of that.

**Bret** 1:09:05

So what we've got is at least three different kinds of evidence all pointing in the same direction, right? We've got the accidental fact of basically a retrospective observation in Africa. We've got Africa, we got differences in protocol between Indian states, and we've got experimental tests in the case of the the Argentina study, for example, right? That's all

**Heather** 1:09:34

well, and some actual, admittedly small, admittedly imperfect studies that Laurie uses that Laurie and company use in their meta analysis. Yep. So that's four.

**Bret** 1:09:45

Okay, so that's four different kinds of evidence all pointing in the same direction. Now, I want to try to put this into context. First of all, I think lots of smart people are being lured by whatever The PR campaign is here into thinking they are being smart for insisting on large scale randomized control trials. Now, first of all, it's not that they are absent with ivermectin, they exist, they have been included in the meta analysis, you can see what they say. But people don't really understand the nature of evidence. There are many different kinds of evidence, randomized controlled trials are one kind of evidence. But this idea that nothing short of that would justify giving a very safe drug to a patient for which there was no alternative. Now, again, I'm talking about treatment here. But the idea that you would need a randomized controlled trial to intervene like that is like somebody would need to prove to you that what's coming out of that hose is water before you can spray it on a burning building. Right? It doesn't make sense. And so anyway, I've been struggling with how, what is this attack in which effectively on you know, when you have some product that you don't want to talk about you for some level of scientific standard on it, that will cause it to be dismissed, because the standard can't be met, I would point out that one thing that is true of these large scale randomized controlled trials is they're very, very expensive. So in fact, by insisting on that kind of evidence, you delay the process for a repurpose drug in which there's not much profit to be made to establish that it can be used, and you probably derail the effort, because it might cost 20 million bucks to do that study. And so, you know, basically, it's a cryptic slant of the playing field in favor of novel high profit drugs about which we know less and against repurposed drugs about which we know a lot. So that's a problem. And anyway, what's the term for this? I'm going to call it mortal rigor. The idea is you apply a standard of rigor that is arbitrarily high and the consequence is that people will not get the drugs that they need because because the objective is to prevent them from being discussed

**Heather** 1:12:07

mortal rigor, rather than fatal rigor.

**Bret** 1:12:10

I kind of like mortal rigor better but anyway, we can we can talk about the term but but I

**Heather** 1:12:14

mean, I think I think maybe you You said it, but maybe I missed what to me is the punchline there which is the double standard of the of the standard of evidence that works, that will suffice right so you know, in in Berlin skin Dagens piece as in other, frankly pseudo scientific attempted takedowns of any critique of vaccine safety, or any discussion of the potential efficacy of ivermectin as prophylaxis, we see the vaccines held to impossibly low standards, and ivermectin held to impossibly high standards. And really, your standards ought to stay the same else. They add standards, right

**Bret** 1:12:53

health standards. And the fact is, we know very little about the vaccines, because they're so new. I'm also told by Dr. Malone that the emergency use authorizations are actually an alternative to another process that would have caused data to be collected something called extended use. So instead of emergency use authorization, extended use would effectively have enrolled everybody who got vaccinated into the trial. So the data on what happened to them would have been collected. And then we wouldn't have to have arguments about what the meaning of the data in the various system is, because everybody would have been included,

**Heather** 1:13:28

like a continuation of the phase three, into into into now, right,

**Bret** 1:13:33

which actually is Wow, it would have been great. It would have been great, right? And it's obviously the right thing to do in light of, hey, it's an emergency, and we're going to deploy some very new technology, and hopefully it works. Wouldn't you want to know? Well, it depends. I mean, especially with a immunity from liability, there are at least arguments that some people might not want to know. So the last thing I want to say on this before we move on to the next topic is one has to think there's a way and I think Americans are particularly guilty of this, where we tend to see America as the world, right? We tend to forget that the rest of the world is out there. Now the question is, if you are comparing something that appears to be highly effective as a prophylactic prevention of COVID-19, ivermectin and carageenan, right, if you are comparing that to vaccines, and you understand that you are going to be living in one of two worlds downstream of this, you're either going to be living in a world in which we've driven SARS kobie, to to extinction, in which case the harms from it are finite, where you're going to be living in a world in which the harms continue to accumulate for the rest of our lives. Right. and beyond. You don't want to be living in that second world. There is no mechanism whereby these vaccines can produce that effect. Right? So the punchline of all of this, I believe,

**Heather** 1:14:53

is you haven't demonstrated that yet. So what do you mean by that? Well,

**Bret** 1:14:57

okay, how is it that we are going These vaccines are imperfect. And so

**Heather** 1:15:03

which is a term of art of Article term meaning that meaning that

**Bret** 1:15:06

people get breakthrough cases people who have been immunized still get COVID. And, you know, so we're seeing this in places like Israel, which has been so,

**Heather** 1:15:16

so imperfect, that 95% number that we've heard, variously at various times that these are 95% effective, the perfect vaccine would be 100%.

**Bret** 1:15:26

Right, right, would be 100%. Exactly. So the fact of these vaccines being imperfect means that in some sense, they are setting the stage for Well, okay, which variants are escaping their detection, the detection that they induce in the immune system? And then those variants circulate? And so then there's a question about booster shots, which could update your immunity? And what is the cost of getting repeated booster shots of this type? We don't know. Right? So there's that, that they're imperfect. And therefore, they do not create a landscape in which you know, if you vaccinate everybody, COVID is driven from it. Right? And on the up, and the other thing is reaching the entire world, we've got a world of almost 8 billion people in it. And so if your point was, look, these vaccines are great, they work really wonderfully, you should still if you're on Team humanity, you should still be wildly enthusiastic about using whatever other tools we have for preventing people from contracting COVID because the objective of this exercise is either to drive it to extinction, or it isn't. And the way to drive it to extinction is to use the best tools you have, clearly. Clearly ivermectin is one of those tools, why? cheap, anybody can produce it, you can produce it in large quantities, you can get it to the world, you can give it to people who won't or can't take the vaccines. So the thing that ought to be bugging you, is why does this come down to people who are pro vaccine enthusiastically pro vaccine being anti ivermectin? Why are they not both of those things at once?

**Heather** 1:17:03

Okay, let's let's just talk briefly about the safety record of ivermectin. The short version is it's been in use for decades, given to 10s of millions, probably hundreds of millions of people at this point, I think that's absolutely 100% true. And, and also widely used retro narrowly, and just has an extraordinary safety record, but the scaremongering and again, we're not going to focus as much here today, as as we will in writing on really the use of fear to drive analytical conclusions that berlinski and Dagon use, which is not just dishonest but but dangerous. But they they really do seem to be fearmongering with regard to the safety record of ivermectin. And so they give three examples actually get four but one of them is a is a one off some, some poor hapless woman took way too much, you know, and ended up with liver toxicity. Because of course you do when you take way too much. It really just about anything. But so the three remaining instances that they provide of why we actually shouldn't imagine that ivermectin is that safe, as they say it causes to stick to their dysfunction. It's a known carcinogen, which means that it causes problems for fetuses during pregnancy during while while they're still in the mom, and that has been linked to serious neurological adverse events. So to these particular claims, we just say that the paper that they cite for distinct testicular dysfunction, a it's in rats, not in humans. And they and the paper itself says ivermectin, and a parasite and anti helment helminthic drug of the family of a rubber actons. Produced by streptomyces. Ever matelasse cultures is a well tolerated drug with no side effects in mammals at pharmacological doses out this is in the introduction of the paper, which berlinski and Dagon are claiming is finding to stick to their dysfunction. And when you actually read the paper, you find that there are tiny effects maybe, but it's in combination with this other drug Verapamil in which fertility Matic effects become an issue. So that's cheating you that's not the result that they were claiming to the second paper, which they cite for the tragic necessity of the drug. That paper actually finds the opposite. Like it's it's stunning like this, this was actually the point in digging into their references where I almost threw up my hands in disbelief. I'm like, are they not even trying? Like, you know, how is it that you could possibly sign a paper that went looking for possible to antigenic effects of ivermectin in pregnancy? Because it's used so widely as a prophylactic in so many countries against so many things already, that we should know if it is, in fact a Trojan and the authors concluded? We can't say it's not we still don't know that for sure. But we certainly can't find any evidence that it is. And that's their evidence. That is berlinski and Dagens evidence that it is A paper that finds that it's not. Okay, so that's number two. Number three is the paper that they cite for evidence of rare but serious neurological adverse events is the only one of these papers that they appear to have cited correctly. But a closer reading shows that the already extraordinarily rare events nearly always occurred in people who either had concomitant infections, or were on other drugs at the same time, and therefore, we can't know we cannot know because there were too many confounding factors.

**Bret** 1:20:30

Well, it's not even too many confounding factors. If the overwhelming majority of the indicators that there is harm are in people who have either these profound infections or on other drugs, then the point is, you can't say that this drug is doing it right. It is at least a common toric. Right, right.

**Heather** 1:20:48

Yeah, it's at least a comment or so this, this drug has been used so widely, so safely against so many things. And, you know, before we talk a little bit about vaccine safety, let's get to so the messaging, can you just get to the messaging here. It's been unused for decades, it's given to hundreds of millions of people. And it's being called a veterinary veterinary deworming drug by some people. If you put up my screen just briefly, Zach, this is the blog science based medicine, exploring Issues and Controversies in science and medicine. That sounds really sciency and medicine II to me, given the name of the blog, and I can't imagine they would use those words if they weren't doing those things. But they then call ivermectin, a veterinary deworming drug. So please, if my if I may, Zack, a veterinary deworming drug. Now, is it used in veterinary circumstances to de worm, non human animals, thus making it veterinary? Yes, yes, it is. Does that make it a veterinary deworming drug? No, it in fact, does not. What is the advantage of framing this drug with decades and 10s of millions of doses given safely and treating a wide variety of drugs? This is a broad spectrum drug, right? This this drug has broad spectrum of effects. And, among other things, it inhibits replication of the yellow fever virus, West Nile dengue Zika, tick borne encephalitis West Nile I already said West Nile, West Nile is on the upsurge right now. And now you can't even get it because people are scared of people using it off label for COVID. And it could be useful. It apparently is useful against West Nile which is surging in several American states. And because why? Because why can't we get access to this?

**Bret** 1:22:45

Yeah, the de wormer thing is particularly good. There's this picture of a vet petting a horse that shows up every time. But it's a little bit like calling this stuff. fire retardant. Right? Yeah, just as a fire.

**Heather** 1:22:57

That's exactly right. So just one one more thing here, before we either go to vaccine safety or somewhere else. off label use of drugs is a long standing practice for doctors right like this. And sometimes it doesn't work out and sometimes it does. But in the case of a drug with such a safety record, it's extraordinary that it would be it would be tamped down this much. And so I find a statement from Okay, so it's granted a little bit obscure from Malaysia's national pharmaceutical regulatory agency. Okay. That says any self medicating or off label use of ivermectin could be dangerous and it could distract from the National COVID-19 immunization program. That puts it within the realm of possibility that the reason we're not allowed to talk about or get prescriptions for ivermectin for use as prophylaxis against COVID is not entirely a scientific reason, but also a political one.

**Bret** 1:23:55

Yeah, political and I no doubt these conversations sound very different on the inside. But from the point of view of those of us on the outside, who presumably every single one of us, even people who have might have a conflict of interest in their day job, every single one of us when we go home to our families, presumably would love for SARS Coby to to be driven to extinction. And I really cannot wrap my mind around why we are not producing this and distributing it as a backup plan as a way to reach all of the people that the vaccines won't reach as a way of treating breakthrough infections, whatever it may be. This tool, the evidence for it is very strong. And we are not deploying it. In fact, we are in various places forbidden to mention its utility, right? So all of this is sending a blaring signal Something is wrong, is it regulatory capture that is leapt into the public discussion space. Maybe it's something else but Whatever it is, is causing us to make a huge mistake and for humanity to put itself in jeopardy of suffering from that mistake indefinitely into the future. Yep.

**Heather** 1:25:11

So berlinski and Dagon in their article fearmonger about the safety of ivermectin while giving the vaccines a pass. And I quote, the evidence that mRNA based calf COVID-19 vaccines are safe, and that they work is about as solid as medical evidence gets. Sure, no one can prove that in 10 years time, you won't suffer ill effects. But nor is there any reason to fear this. That's again, them holding the two things to very different standards. That's a fairly human thing to do to hold things to two different standards. But doing so while pretending to engage in dispassionate analytical argumentation is, I would say analytical malpractice. Actually,

**Bret** 1:25:51

well, yeah, the holding of the two standards is ubiquitous in this landscape. And, you know, again, it's the, it's actually the same rhetorical trick. And I'm sure this has a name, I'm just not thinking of it. But there's something about broadcasting the sense that Only a fool would accept such a thing, right? The evidence for the safety of these vaccines as about as good as scientific evidence gets, well, no, it isn't, we've got a signal in the various system, what does it mean? We don't know, we need a proper analysis of it. But the idea that the evidence is as secure as scientific conclusions get nonsense, well, the evidence is noisy, at best,

**Heather** 1:26:40

noisy at best is exactly right. In fact, again, we have here I can't find the paper. So I'm just gonna have us x show my screen where I've got this on. In a word documents, this is figure 10, from a paper that we'll be talking about here. Which Yes, is from is from the various data. And there's been a lot of discussion about how we can't trust the various data because just anyone can make a claim. And also, it's really hard to use, it's a super clunky system, and really hard to navigate. And, and, you know, who even knows what's hiding? There is this sort of argument. But but this is, this is what we see in various reports per million doses, tools along, not not very much until the rollout of the vaccines, and suddenly, we get a spike. Okay, so, Zack, if I may, thank you. That's that's a figure from a McLachlin at all. who have written a it's a preprint. At the moment, that is, it's a paper that is, is due to enter the scientific literature, peer reviewed pipeline, but has not yet been peer reviewed, which analyzes COVID-19 COVID-19 vaccine reports in which the people then die. And so it looks at this is this is fairly preliminary, they're looking at just the first 101st 250 reports in veirs, from the COVID-19 vaccines, in which the people then then died. And so you know, people show up with symptoms, ranging from, you know, who knows what, there's a whole range of symptoms that people are experiencing from these things. But before I specify what they found, I will say that an additional thing that these authors found, and they really did an extraordinary job is that conservatively at least 67% at the various reports from health service employees and a further 5% from pharmaceutical employees. So that's a conservative estimate is close to three quarters, at least, are from people within the health service system that is not not randos entering data to try to create a false signal. That's not a does not seem to be what's going on. That does suggest a certain level of rigor in the various reports. So the meat of their findings are these and I'll just read this, in spite of the fact that only 11 is 4% of the 250%. With a test confirmed and current COVID-19 infection. All 250 people in this collection are reported as COVID-19 deaths. This means that all even those who received one or more negative test results are erroneously counted in the officially reported National COVID-19 death Tally. So to put that in slightly simpler English, you've got the first 250 vaers reports from COVID-19 vaccination, adverse events, who then went on to die. A handful of these people actually had an active COVID infection and therefore might well have been breakthrough cases. The vast majority of them had negative tests or never had any symptoms or had there's no reason to think that they had COVID. They were after all vaccinated and we are told that they are, you know, highly effective these vaccinations, and yet not a single one of these 250 people who died shortly after getting vaccinated having had adverse events reported in the various system were recorded as vaccination related deaths. They were all recorded as COVID deaths. If that is going on, why are we supposed to trust any of the rest of the data that are coming out? This is an extraordinary result.

**Bret** 1:30:28

Yeah. Now, we should say we don't know what it means, obviously, that this is new to all of us. And, you know, it would be fascinating if there were some explanation, but that does sound like you know, an extreme case of what we've called monkeying with the baseline conservatively,

**Heather** 1:30:44

they say for 13 of the 250 deaths 5% a vaccine allergic reaction was, quote, indisputably the most likely direct cause for the symptoms and patient outcomes described. super conservative number that number there, right, but zero, yeah, zero of these 250 deaths are attributed to vaccine. All of them are attributed to COVID. Even though a tiny handful these people had COVID. And they all had been vaccinated recently, and they all had had adverse effects from the vaccines. That's one line of evidence that tells us you know, what, you guys are informing us that what was what was berlinski and Diegans. Language again, the evidence that these vaccines are safe is about as solid as medical evidence gets. Really, I'm afraid for medical evidence that so that's one, then we also have, you want to add some Yeah,

**Bret** 1:31:38

I do want to add some actually Zack, could you put up the other tweet of Dagens about the availability? So this is a tweet from May 15, where Dagon says, There exists, there is no existing antiviral or any other intervention that can greatly minimize deaths. And so this is with respect to COVID. In particular, yes, yes. And so the point is, the double standard that you are talking about is it is a flashing neon sign here, the idea is no amount of evidence is enough to suggest that we do have repurposed drugs that work, right, right. And no amount of evidence that there is a signal in the various data that needs to be pay attention paid attention to is capable of showing up on his radar. So I don't know what accounts for that. But the suggestion is that the conclusion is where this all started, and that, you know, data will be discounted or augmented depending upon whether it goes in that direction. Yeah.

**Heather** 1:32:45

Maybe I'll maybe I'll just do one more of these here. Okay, let's just talk about Bell's Palsy a little bit. So Bell's Palsy is sudden onset weakness in or freezing of muscles on one side of the face, you end up with this, this asymmetric facial structure, it tends to be temporary. And there were four cases of Bell's Palsy reported during phase two, three trials of the Pfizer vaccine, none among the control group. And there's an FDA briefing document from December 10 2020 of the quote, the vaccines and related biological products advisory committee meeting that was sponsored by Pfizer and violin tech, in service of their new vaccine. And it was reported in this document on page 38. Again, we'll link to it that quote, the observed frequency of reported Bell's Palsy in the vaccine group is consistent with the expected background rate in the general population, and there's no clear basis upon which to conclude a causal relationship at this time. Okay, I think I think you mentioned Bell's Palsy shibley, shortly after we began talking about vaccines, maybe in January or so. But you know, this is all we knew. And this is this is what we were told, right? It turns out, though, that that conclusion, there's no there's no basis on which to imagine that causal relationship is just, it's wrong. And there's a lot of math that I'm not going to show here, I'm not going to go into here and the FDA document and we'd have to be imagining what they did, because they don't, they don't make any justification. They show none of their math, they just say now not a causal relationship. And it's it's in line with the expected background rate for the population. What seems to be the error that they made, and this is just an imaginary number it is that they use annual estimates of Bell's palsy and these four cases of Bell's Palsy post vaccination were like days three through 48. So you know, it's like a month and a half worth of data. And they compare that to an annual annual right. So in The Lancet on February 24 2021, researchers pointed out that there'd been an error and they write, the observed incidence of Bell's Palsy in the vaccine arms is between 3.5 and seven times higher than would be expected in the general population. This finding signals a potential safety phenomenon and suggests inaccurate reporting of basic epidemiological context to the public. That's concise, incisive act. It critically important, right? And they got a little pushback. And they these same authors came back again in The Lancet on June 7, and said in a longer piece, the available data remain consistent with a more than three fold increase in risk for Bell's Palsy within one month of a second vaccine dose. And this is again for the Pfizer vaccine. Now, Reuters facts check. We're all familiar with the fact checkers at this point, aren't we Reuters fact check on whom everyone seems to be basing all of their assurance that everything is just dandy, was released on December 10 2020, the same day as that FDA document came out and they use in fact, the same language, they say, quote, the frequency of Bell's Palsy in the vaccine group is consistent with the expected background rate in the general population. That was six months ago. Reuters has not updated its factcheck to rely to reflect reality. They've made no changes. They put that out based on bad math from the FDA or Pfizer or someone over there. And it has since been reported not once, but twice in The Lancet by researchers who were doing relevant work here, that actually that number, that conclusion is dead wrong. You did the math wrong. Here's why. You it's, it's at least more than three times maybe as much as seven times the background rate of Bell's Palsy in the general population. And if you go to Reuters and say, Is this true? Or is it not? Reuters is still telling you No, no, no, no, no, trust us trust the FDA, we know better. And Reuters is lying to you when the FDA is lying to you. Now the FDA has taken that language out of there later. They're later manuscripts, but breeders hasn't done a follow up where yours is not corrected this. So and this is the basis that the scientifically innumerate and illiterate journalists are looking to when they come to conclusions and tell you that you're lying. That's what factcheck is you're supposed to be doing. And they're not doing their job, the fact checkers aren't being fact checked. And they're not even trying to hold themselves to any standards.

**Bret** 1:36:57

If you think about that long paragraph, if you read from out of out of bad book. The question about what is actually going on here? And whether this is, you know, accidents stacked, stacked on accidents? Or if this is a mechanism for making a certain conclusion, flow through a conversation that would otherwise be alarmed? You know, we don't know. But but that's the question is has capture come to all of us? Is it? is it affecting our discussions with each other over social media and everywhere else? And you know, what does it want, because what it is not doing is behaving in a way that suggests that what it wants is to drive this pathogen to extinction. And I would also point out You and I have taken a lot of flack over our position on ivermectin that there's encouraging evidence about it, and that it is a useful tool, and it is bizarre, we are not using it, and that there is reason to be alarmed about the signal in the various data about the vaccines. But we have been on this question since the beginning, right, when people were downplaying the severity of COVID-19, we were saying, No, no, no, you are being misled by the fact that the case fatality rate is comparatively low, the damage this is doing to people is huge, and there's a clock ticking, right, we have an evolving pathogen that is going to learn to resist our attempts to drive it to extinction, we have a this is, I think, hard for people to grasp. But we at the moment are dealing with a naive pathogen, it has not yet learned to stick to us so well, that we can't get rid of it that way. We can't get rid of influenza, right? But if we give it enough chance, because we play around, and we play these games, where we don't use the best tools at our disposal, because maybe that, you know, isn't in the best financial interests of shareholders of this corporation of that Corporation, we may get stuck with this thing permanently. In fact, I would say it is likely. Now, in light of that, I would argue whatever it is, that is the best plan to drive this thing to extinction. That ought to be our plan. And I think you and I have been very clear, I do not hear this point made widely if anywhere else, the tool is composite, right, you've got part of the population that's immune from having had COVID-19. That immunity is good, because it is likely to be broad, right? You've got part of the population that is mostly immune because they've been vaccinated. And for that part of the human population, all almost 8 billion of us that has not been vaccinated and hasn't had COVID we need to get them something that will prevent them from coming down with it. That's the way we get over the threshold number that allows us to bring our knots which then becomes our sub f down below one so that the thing actually goes to extinction. And you know, every time you see one of these curves where the thing has spiked and then it begins to drop. That's because our sub f has gone below one that's the key, you get it below one, it will go extinct given time you get it way below one, it'll go extinct quickly. That ought to be what we're doing. That's the conversation we do not seem to be having. And we need to get there right away.

**Heather** 1:40:18

Absolutely. Well, he knows a lot more to say, But should we should we pivot and do a little bit from the book and let's do it. Let's do it. Okay. So again, we will we will put something out in writing, we're not sure where yet hopefully, hopefully very soon, that will be a companion to this both both will standalone. But let me see, what am I? What am I doing again, we are going to read an excerpt I'm going to read an excerpt from chapter four. Again, the chapter called medicine, and specifically, from a section called considering the risks of reductionism as we choose what to put in our bodies. Longtime loyal listeners will remember that in our very first live stream on March, something 2020. We said that we had just that month submitted the first draft of this book,

**Bret** 1:41:13

his book being a hunter gatherers guide to the 21st century, this book being

**Heather** 1:41:17

a hunter gatherers guide to the 21st century book that we've been talking about writing for over a decade. And it's, it's, it's written now, and it'll be out in September of this year. And the first draft has changed. The final draft has changed a lot from the first draft, but very little in this chapter has. And so this was written before COVID. Largely there's, there's one section not in what I'm going to read, which we actually did go back and just add a paragraph, because we were doing all the revisions during COVID. But recognize that we wrote this based on our lifetime of thinking evolutionarily, not within the context of a pandemic, with this with this novel virus or these novel vaccines. So considering the risks of reductionism, as we choose what to put in our bodies, is vanillin. Is vanilla and the same as vanilla. Is THC identical to marijuana? No. In both cases, a single molecule active important in the human experience of the larger thing vanilla or pot is not representative of the whole in the case of vanilla and the effect appears to have culinary ramifications, only foods flavored with vanilla and do not have the full richness of vanilla. In the case of THC, which has long been understood to be the main psychoactive constituent of cannabis. Reading only for that molecule made plants that would certainly get you high, but they had insufficient anti psychotic temporary effects from CBD, another active molecule and pot oops. And as of this writing, there is a new marijuana molecule getting traction about the scientific literature in the pot breeding community CBG. It has been purported to have benefits even greater than those of CBD, maybe, but it is the human discovery of that molecule that is elevated to the status of being studied. It was there all along, but now we've imbued it with mystical qualities. Our discovery of a change is nothing about what it does, we often mistaken effect, for instance of an action a treatment or a molecule for our understanding of the effect. What a thing does what we think or know that it does or not the same thing. A combination of hubris and technical capacity has humans recreating this error over and over again. from Florida drinking water to shelf stable foods with unintended consequences. From the myriad issues with sun exposure to whether GMOs are safe. We are constantly seduced by reductionist thinking led astray by the fantasy of simplicity where the truth is complex. reductionism, particularly with respect to our bodies and minds is harming us. Sometimes it is even killing us. Early in the 20th century, fluoride was discovered to be correlated with fewer cavities. So fluoride was putting them in a municipal water supplies to decrease tooth decay. The fluoride in drinking water is a byproduct of industrial processes, though not a molecular form that appears in nature or has ever been part of our diet. That's one point against. Furthermore, we find neurotoxicity in children who are exposed to fluoridated drinking water, a correlation between hyperthyroidism and fluoridated water, and in salmon a loss of the ability to navigate back to their homes stream after swimming and fluoridated water. Is Florida magic bullet for reducing cavities with no cost to other aspects of health seems not. More to the point, the quest for magic bullets for simple answers that are universally applicable to all humans in all conditions is misguided. If it were that easy selection would almost certainly have found a way thank you find a solution that is too good to be true. Look hard for the hidden costs, remember Chesterton's fence, and I'm gonna skip over our discussion of the shelf stability of processed foods and the discussion of vitamin D just so that we have a slightly shorter excerpt here and move into

**Heather** 1:44:45

and also about sunscreen, and move here. Given this track record of reduction of science and health advice, should we trust that GMOs are safe just because those who would profit from their acceptance either intellectually or financially tell us they are? We suggest not awesome GMOs. Say Almost certainly, are all GMOs safe? Almost certainly not. How will we know which are which and can we rely on those who have created them to be vigilant on our behalf? Until we know the answer to those last questions, the precautionary principle suggests steering clear. Finally, it is worth noting that some of the major successes of Western medicine, surgery antibiotics and vaccines are firmly rooted rooted in a reductionist tradition and have saved millions of lives. The problem we are highlighting is the over application of a reductionist approach. The germ theory of disease and its simplest formulation, the recognition that pathogens cause much disease led to the discovery and formulation of antibiotics a huge health boon for humanity, that we over generalized and imagined that all microbes are bad for us. We are now coming to realize that our microbiome has evolved with us and is necessary for healthy gastrointestinal tract. Antibiotics are one of relatively few powerhouse tools of Western medicine. But as they have been over prescribed, we have seen an attendant rise and people becoming sick, often chronically so just as people are falling ill from lacking healthy microbiome due to over prescription of antibiotics, so to our livestock. Furthermore, there are unintended side effects of many antibiotics that will be shocking to most people. My personal experience with the unintended consequences of antibiotics was a ruptured Achilles tendon. It's now understood that tendon ligament injury is one side effect of Cipro and all of the antibiotics in that class fluoroquinolones which, which I took in quantity in the 1990s, toward off gi bugs while conducting research in the tropics. from Florida drinking water to antifungals, and shelf stable food, from sunscreen to the overuse of antibiotics. Over and over, we make the same kinds of mistakes. Combined reductionism with a tendency to overgeneralize in a hyper Novel World were quick, but expensive, and potentially dangerous fixes are common. And we've explained some of the major areas of modern health and medicine. This is exactly what we're wrestling with here. It's not going to be simple. And if someone is telling you I've got the simple magic bullet, it's gonna allow you to get back to your life. And you can go out and be able to have cocktails with your friends without worrying ever again, about COVID. Probably trying to sell you something that isn't exactly like what is in the package that they've got for you.

**Bret** 1:47:07

Yeah, there are two things going on. One is the tendency to over generalize from reductionism. And the other has to do with perverse incentives. And they're both captured there. I mean, I remember the world that you and I grew up in was a world that did regard microbes as hostile. Yeah. Even though micro Lysol everywhere.

**Heather** 1:47:30

Well, that's, I don't think either actually in either of our homes, but in many, many homes we saw was probably

**Bret** 1:47:35

probably in my, my Natal home, I at least can tell you what it smells like. So it was there. But yes, the sense that what one was trying to do was to drive microbes to zero is a preposterous, it's impossible, it would be deadly. And the point is, it misses the basic point, which is that the occasional microbe is dangerous. And most microbes are harmless and some microbes are essential. And you know, welcome to complex systems.

**Heather** 1:48:09

That's right. That is right. Well, are we there?

**Bret** 1:48:13

I believe we are there.

**Heather** 1:48:14

Okay, Amir? Well, my friend, Amir, okay. My, my computer has chosen this moment to meet me this may actually have been its final. I don't know, it came back again. It's not dead yet. Unfortunately. That was almost two hours. So we are going to take a break and we will come back with a q&a because we told you we would and you can ask questions at that. Boy, even as it's Thank you Dark Horse. Dark Horse submissions calm, you can ask questions, but we're going to do an abbreviated q&a this week because we started late and we bet we bout this a long time. So we'll just finished with a few. A few of the typical announcements. Please consider joining either both of us at our Patreon we've seen an outpouring of support since our YouTube channel got demonetised and we are extraordinarily grateful. We really, really truly appreciate it.

**Bret** 1:49:12

And and then it empowers us to keep fighting.

**Heather** 1:49:15

It really does. Yeah, it really does. We do have some things like that Goliath shirt that we introduced last livestream at Dark Horse pod cat, no store dot Dark Horse podcast.org. You can send logistical questions like I want to send them something or what was the URL on that again, to Darkhorse dot moderator@gmail.com. No, don't send the questions for the q&a there. They will they will not get forwarded to us. Consider subscribing to again all all four of our channels the two on YouTube, the main one, Brett Weinstein and Dockers podcast clips. And and here I hope on Odyssey, Brett Weinstein Dockers podcast clips like this material, share it and Remember to be good to the ones you love and eat good food and get outside. Be while everyone