

Robb: Hey rebels, welcome back. Hope y'all are doing well. Clearly, the SARS-CoV-2 is on your mind. It's on my mind. It's shaken a lot of things up. Definitely changing our world. This episode, I'm going to try to dig into the way that I'm looking at this topic. I'm not a doctor. It's been a long time since I was a scientist actually doing science work, but I've stayed on top of a lot of this stuff pretty closely and I guess one of the things that I'm really concerned about is that folks are not really taking this seriously and they're just absolutely no doubt that things are being manipulated in a way for political gain, for posturing. All of that stuff is happening, but that doesn't mean that there's not a problem afoot.

Robb: And so the way that I'm looking at this is basically kind of three different pieces. The first piece being what's our best estimate or understanding of what the current numbers are, and that includes the number of people infected, recovered, the number of people that have died. From this, we can get some sense of when an inflection point is going to be reached. When we've kind of hit a peak at least in theory and this can aid in all kinds of planning including how much food you need, travel, money, medications, and this is on both the micro level and the macro level. This is the type of stuff that everything from running your family to local states and federal governments need to think about this stuff.

Robb: In the US, it appears we are likely about as of the time of recording this and by the time that this goes up, we're about, best estimate, it's probably two to four weeks out from our peak. And when you overlay some of the data that we have with regards to cumulative cases, we are right in line with what Italy has experienced and we're about 11 to 14-day lag behind Italy in the number of cases. And fortunately, so far we have lagged behind Italy in the cumulative death rate, but we know pretty clearly that within the Italian hospital systems, once they get overwhelmed, the mortality rate goes from somewhere around 0.6% to about 6%, if not higher.

Robb: I don't know. It's so hard. I think in an earlier podcast, I hesitate in these days where people speak so emphatically about different topics that this is the fact and stuff like that. But this seems to be pretty credible data. This seems to support data that came out of China and Singapore and those folks have a lot more experience dealing with stuff like this. They've dealt with SARS 1, they dealt with MERS and they were much better prepared than anybody in the west has been, and they still barely stayed on top of this stuff.

Robb: But I'm going to have a ton of links to the material that I'm talking about in the show notes, links to the graphics that I'm using for this. There's a guy, Simon Kistemaker who is on Twitter and he has a piece, a comparison of the Coronavirus cases and deaths in Italy and the US 11-day lag. So I've got some links to that. But again, one of the first pieces that I think is important to just keep a little bit of a finger on the pulse is the best estimate of where the current numbers are and then some extrapolations from that as to where we will be in a day, a week, a month, a year, et cetera.

Robb: So the other things that I think are really important to consider in this whole topic are what are the things that we could do that might make things worse? And one of the

things that pops up immediately in that story appears ironically to be NSAIDs, nonsteroidal anti-inflammatory drugs like ibuprofen. Although this is not a 100% across the board story. It looks like Neproxin and some other NSAIDs may actually have some antiviral effects.

Robb: So we have to kind of take things on a case by case basis. But as I'm going to dig into later, some other things like ACE inhibitors that are used for blood pressure medication, they correlate very poorly with good outcomes. And that doesn't mean that if you or someone you know is on an ACE inhibitor, they should stop that immediately, but it's just something to be aware of. The better information we have, we can start making better and more informed decisions, which leads into what are the things that we could do that could potentially improve our situation. This is above and beyond hygiene and social distancing. And I know that there's a lot of controversy around this and I'll talk about some of the maybe like personal freedom elements of this in a little bit.

Robb: But the basic story here, and I'm sure you guys are aware of this, but sometimes hearing it multiple ways, occasionally this can sink in. But in theory, what we're trying to do right now is flatten out the rate of growth so that our hospital systems are not overwhelmed and this keeps the mortality comparatively low, both in our more effected population but also within our healthcare first responder population, which they absolutely get crushed under these circumstances. Particularly once the system starts to fail.

Robb: The stories that are coming out of Italy currently are pretty horrific. People in developed countries just have no appreciation for the type of horrors that are are occurring here. So above and beyond social distancing and basic hygiene, what are some things that we could do that might improve the outcome of having this condition, this disease. But it's definitely time to take things more seriously. I get that this is a mixed bag of government overreach.

Robb: A good friend of mine who owns a number of restaurants, he posted a piece that was really well written and it is basically making the case, isn't this kind of a First Amendment in encroachment here, telling people to not get together. We have in the United States a right to assembly. It's tough and this is where if people take appropriate measures early and thoughtfully, then we don't need the government to get involved with this stuff. If people are doing the things that largely probably should be done, assuming that all this stuff is on point and accurate and I've seen some absolutely insane conspiracy stuff floating around and I'll try to remember to touch on some of that, but this stuff is absolutely politicized. It's definitely being used as a political bludgeoning tool.

Robb: That's true. Without a doubt, that's true. I guess these days I'm kind of labeled a conservative. I've always been kind of libertarian leaning a fiscally conservative, socially liberal. In the days of George Bush too, most people thought that I was a complete left wing pinko because I felt like our military was doing some pretty significant overreach. In this day and age, I'm now a right wing conservative apparently, even though my personal politics haven't really changed all that much, the world has changed a lot.

Robb: And so I get that this stuff is being politically charged and used in various ways that are arguably pretty nefarious. That can all be true and it can simultaneously be true that people seem largely incapable of understanding what I just said, and the fact that estimates to put the US death toll from the COVID-19 disease over a 12-month period between 500,000 and 2.2 million Americans dying over the course of a year.

Robb: Last year, 2.8 million Americans died from all causes. So you're looking at an increased death rate that is just staggering. And again, there are a lot of people that are... I don't want to say this. Well, I made some mistakes early on in this and I guess I'll get to that in a minute, but I just need an aside. Italy is not a fucking developing nation. Some of the commentary that I've seen around why things got so bad in Italy, it's so ignorant and so ill-informed, it just makes me embarrassed in a lot of ways.

Robb: Italy has an absolutely outstanding medical system and I don't care where you are in the political spectrum like you can talk all about their socialized medicine scene or whatever, but they had advanced hospitals, phenomenally trained physicians. The shit works really well and if people would bother themselves to travel a little bit and talk to people and learn about these things instead of making these ignorant, ill-informed decisions, they would understand this better.

Robb: This is a developed nation with an advanced medical system that got completely fucking overwhelmed and now they're just basically making decisions. One of the really gnarly news pieces, basically if you're over 80-years-old, you're on your own. They're not even going to bother allocating resources towards you because the likelihood of your recovery is so low.

Robb: So that's all I want to say on that. But anyway, a really critical piece to understanding this or to at least... Let's just say I'm wrong. Let's say I'm full of shit, but at least these are some things that one might ask oneself is, "Is this SARS-CoV-2 just the same as the flu or less problematic than the flu?" In the mistake that I made, I fucked this up in the beginning too, was that when I looked at the numbers for the last year's influenza epidemic, it's huge. It's X number of million people infected, this many deaths, this much mortality. But what I was looking at was the end stage of a global pandemic in that case, influenza and it ran its course.

Robb: We are in the very beginning stages of exponential growth for this disease, at least in the westernized countries, China, Singapore, some of these other places closer to where this emanated from. And keep in mind too, this disease appears to have emerged for the first time, perhaps in late November. And so when you are comparing where this story is with regards to exponential growth versus where influenza is with regards to an exponential growth, we're at the very beginning of this, and the best estimates put the transmissibility of the SARS-CoV-2 at 10 times the transmissibility. It's 10 times easier to get than what influenza is.

Robb: And there's a spectrum on this and I'm blanking on the term, but there's basically different gradings of how nasty something is, how easy it is to catch. And like SARS 1 is like a 1.5. Influenza is like a three. Measles is like a 12th .measles is very, very easy to

get. But the SARS-CoV-2 appears to be much more easily transmitted than what the influenza virus is and it also appears to have 10 times the mortality rate. And it has a mortality rate that is just like influenza higher within older populations, but it affects all populations. It's much, much lower at the younger ranges, but if the individual is immunocompromised or has other health issues, which I'll talk about that in a little bit, it can be bad.

Robb: So I guess if you're skeptical about this, what I would recommend is you get in and deconstruct this information and you prove... I guess first yourself and then prove to me that it is inaccurate, two points, that this is the same story as the influenza virus and that means that we're at the same place with regards to exponential growth as influenza, which is bullshit. That's just simply not the case. And then also you get in and do the data crunching as to the morbidity and mortality associated with this condition relative to influenza.

Robb: If you can prove that it's a walk in the park and this is all hype, that's great, but just don't listen to talk radio and make the assumption that you knew what the fuck is going on with this. I actually put some skull sweat into this because I've done this. I've put this stuff into spreadsheets and tried to deconstruct like are these people really representing the numbers properly? I'm not a statistician, but I'm also not an idiot with math.

Robb: As far as I can tell, these people are pretty on point, and this is where some of the information around like the general background mortality rate across the board for SARS-CoV-2 appears to be something on par with about a 0.6%. But again, when hospital systems start failing, when people cannot be intubated and put on ventilators, which there is a completely limited number of, then folks start dying and that death rate increases by a factor of 10.

Robb: So again, like I said, folks are looking at the end stage of the story, the influenza numbers, they're comparing the beginning versus the end. Again, some of the numbers like in the 2017-2018 flu season that were between nine and 45 million cases of influenza, they were between 12 and 60,000 deaths.

Robb: The numbers that we are looking at for SARS-CoV-2 were just in the very beginning stages of that. And again, the numbers that we're getting suggest that it's far, far worse both in transmissibility but also in fatality relative to the influenza virus. And again, I made this mistake as well. It didn't look like a big deal when things first got going, and it's kind of funny because I kind of rail that folks don't really understand exponentials, and here I actually made that mistake as well.

Robb: So the way that exponentials can kill is that the growth, by the time you notice the growth, it's too late. And so a good friend of mine, Chris Martenson over at peakprosperity.com, he did this great analogy and a little bit of back of the napkin math and it's a great visual to kind of figure out what's going on. So if you imagine Fenway stadium, this giant baseball stadium, there are these upper bleacher nosebleed seats that are like eight stories in the air, and this thing is a huge bowl basically. So imagine that down at home plate at noon, somebody puts one drop of water at home plate in

Fenway stadium and you happen to be handcuffed to the upper row seat in Fenway stadium.

Robb: Now, at 12:01 two drops of water appear on the home plate and then at 2:02 four drops of water appear. 2:03 eight drops of water, 16, et cetera, et cetera. So this is exponential growth and it's happening every minute. You're handcuffed to a seat in Fenway stadium and at noon, exponential growth starting with one drop begins. How long until you drown? How long do you have before you need to get out of there before you die from drowning? It's fascinating because exponentials just really defy the human mind because they don't really exist in nature that much. They describe the growth and decay of pandemics, which really don't actually last that long.

Robb: It describes the process of like a bomb exploding, but it's difficult to kind of wrap our head around. But people guess anything from days to weeks to months for this thing to fill up. But when you drown, is it 12:49? That's when the stadium is full. That's kind of stunning for people to recognize that, but what's really, really important to understand, take a guess as to when the stadium is still 93% empty when they're just maybe a couple of inches down on the infield of water? And that's at 12:44.

Robb: So at 12:49 you drown, but at 12:44 you can barely see a shimmering of water down in the infield. This is what an exponential is and this is the way that exponentials can kill us if we don't take them seriously. The exponential growth behind this disease, by the time we see large numbers of people, it's going to be very difficult to get out in front of it. And honestly, within the United States, that's probably where we are. We have a completely inadequate testing at present, so we don't really know where to focus isolation and containment. The social distancing is hopefully going to affect some degree of change in flattening out the growth curve, but we'll honestly see how that goes.

Robb: So there's a great piece in New York Times coronavirus math mitigating by distance. If we act now versus later, the communicability of the SARS-CoV-2 could be used to an advantage and that is because it is so communicable that if it makes its way through a given segment of the population, you could make the case that it will kind of burn itself out. This is assuming though that folks can not get reinfected with this virus, which it's not entirely clear whether that is true or not. And if folks can get reinfected or I guess it'll depend on whether or not it's like 1% or 100% of people can get reinfected and actually a lot of this stuff is kind of pointless.

Robb: But anyway, if you avert a case now, it dramatically changes the area under the curve of the number of people affected 30 days later. If you avert a case seven days from now, it barely changes the shape of that curve and the volume of that curve, the number of people involved at all. So if you're going to do something, we really need to do it sooner as opposed to later because this is kind of like compound interest. Again, another exponential function. You want to get in early to affect the greatest change that you possibly can in this story.

Robb: So what are some things that could make the situation worse and poor health at large is kind of the big deal. And within that just age is a big factor, and this is similar to just

cardiovascular disease risk. The number one risk associated with cardiovascular disease and heart attacks is just simply age unfortunately. Things like diabetes, obesity, hypertension, auto-immunity, kidney disease, respiratory disorders, they all play into this.

Robb: Heart disease, cardiovascular disease interestingly appears to be worse than respiratory ailments in general, which is really interesting when you consider that one of the primary modes of action is for this virus to affect the lungs specifically. So these are all arguably metabolic driven diseases. These are diseases of modernity, and we'll talk about this a little bit more a bit later, but this is really the case for why we all should be as healthy as we possibly can.

Robb: NSAIDs are interesting and that some things like ibuprofen appear to potentially worsen outcomes. However, Naproxen and Indomethacin, which are also technically NSAIDs appear to have some antiviral activity and all mention some other pharmaceuticals, nutraceuticals and a really phenomenal review paper that gets into what is the current state of the art and understanding in kind of interventional therapeutics that can be used to change the course on this.

Robb: So some NSAIDs appear to potentially be beneficial, some of them potentially harmful in this story. This is where we need some good data crunching, retrospective studies, looking at who's on what and how did the outcomes play out or potentially what type of interventions were used trying to help people and how did that affect things?

Robb: A kind of gnarly discovery is the ACE inhibitors drugs, one of the most commonly prescribed drugs, it's used for hypertension, high blood pressure, it appears to enhance the ability for the virus to make its entry into the affected cells, particularly in the lungs. Again, it's unclear whether or not somebody on blood pressure medications is going to be well served by just jumping off of the medications. So clearly if you or someone you know was on any of these medications, you've got to talk to your doctor and talk about the kind of risk reward story that exists here.

Robb: We have general trends emerging. We really don't know fuck all at this moment and it's going to take us time to put this together. But again, these are just kind of topics and lane lines that we can keep an eye on so that if any of this stuff speaks to you, if you have some chronic kidney disease, what are the pharmaceuticals and the medical procedures that are being enacted that maybe improve or worsen the viral outcome if and when you catch this condition.

Robb: This is a really big deal, and again, this is why it makes me kind of crazy that some folks are so blasé about this. Fewer than 12% of Americans are metabolically healthy. And from what we can understand, it's the metabolically unhealthy people that are disproportionately affected, which makes it really scary that a lot of folks, potentially much younger folks are going to be in this situation of needing really advanced medical intervention to save their life.

Robb: There is simply not that much resource to go around. There's a limited number of beds, a limited number of ventilators. We're already rationing things like masks and gowns for our medical professionals. So this is where taking some smart action can buy some time to get infrastructure and get the basic fucking necessities that we need to be able to manage this situation. 60% of Americans have at least two chronic conditions.

Robb: So even though China is westernizing and even though the population that was affected primarily... What's interesting it was largely a more affluent population, but a very high smoking rate, particularly within men, and that certainly worsened the outcomes for a number of people. But in general, those folks are not as metabolically sick as most people in the United States. They just haven't had enough time to get to that point.

Robb: So this could be really bad. What things might help? Pharmaceuticals, medical interventions, nutraceuticals, and there is a phenomenal paper that I have linked in the show notes. It was published in the Journal of Medical Virology, potential interventions for novel coronavirus in China: A systematic review. This was published on February 4th, 2020.

Robb: Some drugs like chloroquine would show some really remarkable promise as an antiviral agent. This is a common anti-malarial drug. There's a host of antiviral drugs and protease inhibitors that have potential here, and this is where we really need to buy time so that people can look at these topics and not be overwhelmed with the critical care element because it could be that even people in later stage say like respiratory failure, Remdesivir is a drug which has been successfully used in recovering people from effectively the brink of death. They're on a ventilator, they're they're crashing, they're going down, And some of these drugs have been able to pull some folks back.

Robb: But if we are completely overwhelmed in our medical systems, we won't have the time to look at this stuff in a critical way. If we'll buy a little bit of time, then we will be able to look at things like these antivirals. There's a thing called convalescent serum, which is basically pulling antibodies out or basically pulling a plasma out of individuals that have recovered and providing that to people that are either very sick, in which case you effectively need about a one-to-one situation.

Robb: You need one recovered person providing serum for one sick person to be able to make a difference there. However, this convalescent serum can be used as a prophylactic measure for our first responders and medical professionals and one person might be able to provide serum for up to 100 or 200 people. There's a lot of infrastructure that's necessary with convalescent serum. You need a dialysis or a pheresis type machinery and it is a nontrivial amount of infrastructure to do that, but it is an option.

Robb: Vaccines, there was just some word that Israel actually was already working on a an animal focused SARS-CoV vaccine and so they've been able to get the gene sequencing on this current virus and tweak what they're up to with that. And so it's a possibility that we may have a vaccine on the not too distant future, but at absolutely blazingly fast process on that would be six months from now and it's more likely to be a year to 18 months.

Robb: Interestingly, substances that release nitric oxide, which Viagra is kind of interesting in that regard might be beneficial. Within this paper it talks about different... It goes into all the pharmaceuticals, but then also just basic vitamin and mineral status and how that may favorably play into the outcomes.

Robb: Now it is interesting, Chris Masterjohn has released a guide that calls into question whether or not we would want say like elevated levels, vitamin D or vitamin A. Usually these are our potent immunomodulators, but the way that this virus functions is by enhancing the immune response, which causes kind of a cytokine cascade, inflammation. And so this is where like it's so interesting because you want an adequate immune response, but you don't want an overactive immune response. So I'm going to be looking more into the specifics on the vitamin and mineral side of the story could beneficially or negatively affect this. But I would definitely check out that paper that we have linked in the show notes.

Robb: Some things that we can do. There's some good opportunities here too if we are kind of quarantined at home, there's some stuff that we can do. There's some great opportunities to get in shape, set a strength or endurance goal. Even if you have to work out in your one bedroom apartment, there's all kinds of people who are coming up with home-based workouts. They're really phenomenal. Practice a language or a job skill. That is just an amazing way to both pass the time but improve yourself in this this moment of really just having massive challenge.

Robb: I'm actually starting to tinker with the guitar again. I have had forays into and out of the guitar over a 15-year period and my skills suck and although I'm working a lot right now, I have some time that I'm going to devote to that. And also make a case to reconnect with people even if it's virtually with folks that you've lost touch with like that human contact, that human connection is going to be really important.

Robb: We have a couple of neighbors that are definitely older and I reached out to them via text saying, "Hey, if you need someone to go grab some food for you, I'll do it." And they were very grateful. They're pretty set up for right now, but they said that they would reach out to me when they need some help and I got to say that made me feel good and I'm pretty sure it made them feel good as well.

Robb: Just a little bit at heading towards wrapping up on this initial piece. I'm sure it will be doing some future updates around this topic, but planning for next time, when we are all looking back at this and we will look back at this, we will get through it. It's scary and gnarly right now, but most of us will get through it. Not everybody will, not everybody that we love will and that's kind of a reality. And the Asian response to this versus the Western response, I really want people to take note of that.

Robb: Now some of the Asian response like in China, because it's a largely totalitarian regime, they had the ability to enact really draconian interventions on people and I don't know that 100% recommend that as a first line intervention. But they had experience with SARS, they had experience with MERS and just on a structural institutional level, they were ready for this. They were absolutely ready for it. And we are in the existential

equivalent of having our underwear around our feet, a carrot stuffed up our ass and we're supposed to be running a marathon right now.

Robb: And we're doing the best job we can, but we are so completely ill-prepared for this compared relative to the way that folks who have gone through experiences like this. So when we look back, we need to really think about what we were doing on the planning side of this story. We can't be reactive to this at all.

Robb: Planning for next time something like this will come around again. This very same contagion may come around again. It's possible that within the Northern Hemisphere, this kind of dies back in the summer and then makes its way through the Southern Hemisphere and then ping pongs back here. This is where I am, in the fall. But when this comes back around, when anything like this comes back around, whenever we are faced with some sort of a crisis, poor health is a massive hazard.

Robb: I don't want to be preachy like I've generally tried to put this stuff forward in a way where it's like, "Hey, the folks that want to buy in, buy in. The folks that aren't ready, that's fine. It's not fucking fine anymore. And it hasn't honestly been fine for a long time. Our systems are strained to capacity every day as it is just dealing with the literal weight of our metabolically broken populace, and this starts at our food systems. It starts at the way that the political infrastructure subsidizes ship food.

Robb: The vegans are playing this thing up in such a remarkable way. It just boggles the mind to even speculate on that. But if you are not in the best health you can be, you are in danger. And what's interesting is the specter of heart disease and cancer and diabetes just doesn't seem to perk people up that much, but the specter of communicable disease does. And what I would tell you, what you can tell the people that you are trying to influence, this is coming again. Something like this is coming again and every time it does make its way through, the folks that are in poor health are generally the ones that fare the poorest.

Robb: So this is your time to act. This is your time to do something different. The more chronic degenerative disease is the reason why we created The Healthy Rebellion. The congressional budget office is projecting that by 2030, 2035 the US healthcare system is bankrupt from diabetes related issues alone. When you throw what the impact of this COVID 19 is going to be on our medical system, it's just mind boggling and that I think I neglected to mention the people who are recovering from this condition, many of them have terrible lung damage, but what seems to be a commonality in these people is that they are metabolically broken.

Robb: They have the characteristics of metabolic syndrome after experiencing this disease. Now it's still really early. We don't know if that's a permanent state or a transient state, but we know that anything that moves us towards metabolic derangement is bad, and when you overlay that with the general worsening of health that we see everywhere due to dietary and lifestyle issues, this is something that we absolutely have to get on top of.

Robb: So our goal in The Healthy Rebellion is to liberate 1 million people from the sick care system and that is just looking at the chronic disease process. We now need to be hypervigilant about this communicable disease piece. And as I said, Western healthcare systems are strained and near breaking already due to chronic degenerative disease. Pandemics are just poised to overwhelm the whole system and there's really no arguing that fact going forward.

Robb: So I hope you guys are well. Take care of each other. We are doing everything we can over at The Healthy Rebellion to provide good information, good community support. We would love to have you there. I will be providing updates as frequently as I feel like they are a value to people, but you guys take care.