



The Truth Behind the Data - Ref194

with Sebastian Rushworth

13th October 2021

TRANSCRIPT

Please note, this is not a verbatim transcript:

- Some elements (repetition or time-sensitive material for example) may have been removed*
- In some cases, related material may have been grouped out of chronological sequence.*
- The text may have been altered slightly for clarity.*
- Capitalisation and punctuation may be erratic...*
- There may be errors in transcription. If something appears odd, please refer to the recording itself (and let us know, so that we can correct the text!)*

Steven Bruce

Good evening. Welcome to the Academy for the second broadcast of the day. It's been quite a day to day I can tell you. This evening I'm going to be talking to Dr. Sebastian Rushworth. Now, Sebastian is a junior doctor in Stockholm. He graduated two years ago, but he has risen to internet fame through an excellent blog that he's written, one which came to my attention through the equally admirable Malcolm Kendrick, who writes a lot about cardiovascular disease. But the thing that drew me to Sebastian's blog is his analysis of all the data and his picking apart of the misinformation, sometimes disinformation that we see through not just the internet, not just through social media, but also in various respectable journals and other sources. And not just regarding COVID. Of course, that's been the focus of the last 18 months or so, but Sebastian has written about exercise, nutrition, cardiovascular disease, a whole host of other things, but I suspect we will be dealing with those as well as COVID. Now, COVID has the capacity to polarise opinions as we all know. And I have no doubt that Sebastian will say things with which I might not agree or you might not agree, can I please ask that the only way we get benefit from shows like this is if we accept all this on the principles of medical evidence, and we listen to what Sebastian's got to say and by all means, chuck in your opinions, because we want to share different opinions and we want to analyse different data that people might have. But there's not any room, I think, for being abusive in the way we see so much on social media when someone doesn't agree with our opinion. So, having said that, Sebastian, welcome to the show. Great to have you with us.

Sebastian Rushworth

Thank you. It's my pleasure to be here.

Steven Bruce

Now, I bought a copy of your book, as soon as I found out about it. If I remember the title correctly, it's Why Everything You Know About COVID is Probably Wrong, which is a very catchy title. And it's a very good book. And I apologise that I can't hold it up for the audience to see because I'm moving clinic, moving house, moving studio, and everything's in packing cases. But I do thoroughly recommend the book. It's not expensive. It's not a huge tome. It's a very easy read. But the big question is, is it still true?

Sebastian Rushworth

Yeah, I think most of the things in that book are correct. Some of the details might be slightly different if I'd written it now, based on new evidence that's come out since the book came out in January, but on the whole, I think the book still stands.

Steven Bruce

Right. Okay. Can you talk us through them, the misconceptions about... Or start wherever you like with COVID. But what about the severity of the disease? Is it as nasty a disease as we are led to believe? We have had a speaker on the other day who said there is no pandemic. And that speaker was also a medical doctor. So that's one end of the spectrum of thought.

Sebastian Rushworth

Well, I guess that depends on how you define a pandemic. From my perspective, COVID is the pandemic. I heard the other day; I don't know where I heard or read it. But somewhere that most Americans think that if they get COVID, there's like a 50% probability of being hospitalised and maybe a 10 or 20%

probability of dying. And if that's what people believe, then they're very much incorrect. So I mean, there have been studies, even from the very beginning with the data coming out from the diamond princess and from gathering antibodies, and comparing with the number of people that had at that point died of COVID. And they universally kind of agreed on a much lower figure and so this figure is kind of continued to crystallise over the course of the pandemic, but the general consensus now is that the overall fatality rate is somewhere between 0.2 and 0.3%, which would mean that somewhere between 99.7 and 99.8% of all people who get COVID survive it.

Steven Bruce

Sorry to interrupt you. There are two different rates to measure there, aren't there? There is the population fatality rate and there's an infection fatality rate. The figure you gave there, you said the overall figure, was that the number who will die who are infected with COVID?

Sebastian Rushworth

That's the infection fatality rate and obviously, the population fatality rate will be even lower because not everyone's going to get infected, and the case fatality rate will be higher, because well, many cases of COVID don't get recognised, up to half of all people who have COVID have either no symptoms or symptoms that are so mild that they don't even realise that they have an infection or at least that they don't bother to get tested. So because of this, the case fatality rate will always be inflated.

Steven Bruce

And that's an interesting point, because it depends on your definition of the word case, doesn't it? And I always struggle, I read the Guardian over here every day, I don't read every day, but I get it every day. And it tells me that today we have 43,000 cases of COVID in the United Kingdom, and that's increased from last week. But I can't help thinking that if a case constitutes anybody who has the virus up their nose, then the case rate will depend very much on how much testing we're doing, rather than who's got symptoms.

Sebastian Rushworth

Absolutely, and I mean, this is something new for COVID, that it's enough that you have a positive test to be defined as a case. Before that with infections, you were required to have some kind of symptoms as well that you need to fulfil both criteria, you're not a case, just because you show a positive test. So the definition has become more lenient and that's kind of fed into the hysteria because we have ever increasing numbers of cases. But that's not necessarily representative of the number of people who are in hospital. If you look here at the Swedish data, that becomes very clear. Our first wave, there were as many people in hospital with COVID, as there were in the second wave. I mean, there were as many people getting sick. But if you just look at reported cases, there were 10 times as many cases, at least in the second wave as there were in the first wave. And that was only due to the fact that there was massively more testing going on during the second wave.

Steven Bruce

Right? Yes, of course, we're probably turn back in a little while to how Sweden's fared through the pandemic, because of course, there have been interesting reports about whether Sweden did well or did badly or did just the same as everybody else. I'm certain that you've got an opinion on that. We seem to

have lost interest in this country in the R number, which was very popular a few months back, but based on what we just said about how we define cases, does the R zero number or any other number for that matter depend on how you define cases? Or would it not change if you only took symptomatic people? R zero, I'm just explaining what I think that means. R zero means the rate at which the disease would spread if no other measures were taken to contain it.

Sebastian Rushworth

Yeah, well, obviously the more lenient you are defining a case, the higher the R number is going to appear to be and if you compare with other viruses, with other infections, where the definition of a case is symptoms and a positive test, then the relative R number or the relative infectiousness of COVID is going to appear to be much higher, relatively speaking.

Steven Bruce

Yeah, I'm intrigued, I think the current evidence, or the current opinion of exalted statisticians is that the R zero number for COVID-19 is about three, it's just very slightly less than three, whereas for the normal seasonal flu somewhere around 1.2. Does that sound reasonable?

Sebastian Rushworth

I haven't looked into the exact numbers on this. But I mean it sounds pretty reasonable. And the virus has been evolving over time, over the course of the pandemic and becoming more and more infectious. The variant that's dominant at the moment is far more infectious than the original variant that came out of Wuhan two years ago.

Steven Bruce

Yeah. And are you seeing a significant rise in symptomatic cases in hospital as a result of that?

Sebastian Rushworth

Not here in Sweden. And I think that's due to the fact that we have already, through the earlier waves, built up a large amount of immunity, both natural immunity and also vaccine acquired immunity. And apart from the fact that lots of people already have COVID in Sweden, around 80% of the population is vaccinated so in that situation it's hard for the virus to create new waves, even with the new variant that's as infectious as the Delta variant is.

Steven Bruce

Joanne has sent in a question saying, how can you include those who do not have symptoms? And I think that's the question that a lot of people are asking, Joanne, because it seriously distorts the statistics on the number of people you say have a disease or are a case, if you include those without symptoms. And I often wonder if we did national testing for the flu each year, I wonder how many cases we would find?

Sebastian Rushworth

Well, I mean, we've never done this kind of mass testing ever before this we've done for COVID. I mean, if we did in the normal flu season, we'd probably be finding 10 times as many cases of the flu as we do. Normally, in a flu season we barely even test people who are coming into the hospital with symptoms of

flu. So whereas now we test everyone at the slightest sign of a sniffle, obviously we're going to find many more cases.

Steven Bruce

Matt has asked whether, he says it's an obvious question, but do you know, does anyone know why there is such a huge range of symptoms or experiences that patients suffer with COVID? Some people very severe, some people very, very mild. You know, obviously there is a range of symptoms, not everyone gets all of them, but it seems to be more diverse and wide ranging than say for flu or cold.

Sebastian Rushworth

So I'm not actually sure that that's the case. If we're talking about degree of severity. I'm not sure that COVID is markedly different from other coronaviruses we have. So there are four so called common cold Coronaviruses circulating in the population and they've all been here for decades. So there's been a certain amount of adjustment, evolution. In general, viruses become nicer over time, they become less deadly over time. And I'm sure COVID is going to evolve in that direction too over time, but there have been studies that have shown that in elderly people, when one of these common cold coronaviruses gets into a nursing home, for example, and causes an outbreak, it can easily have a fatality rate of 10%. So this kind of idea that COVID is causing much more severe disease than other coronaviruses, earlier coronaviruses are capable of is false. And I think it mainly comes from the fact that we've had this pandemic and lots of people have gotten sick at the same time. And that's kind of laid bare how wide the spectrum of disease is. Normally we don't notice because only a small proportion of the population is being infected in any one season.

Steven Bruce

I suppose that we probably can't overlook the fact that in this country, we actively send people, elderly people, infirm people with COVID back into nursing homes. So we actively encourage the spread amongst that vulnerable population, which can't have helped our death statistics particularly. You said there were four viruses, so the other two presumably being MERS and SARS.

Sebastian Rushworth

And also, there are four common cold Corona viruses and then we have the more serious, we have MERS and SARS and then SARS COVID 2. So in total, I guess you could say there are seven Coronaviruses known to cause disease in humans in existence at the moment.

Steven Bruce

Interesting that you said you would expect that the virus would become less deadly over time. I have to say that that hadn't occurred to me because of course, we've been faced with all this information about the latest wave being so much more infectious and therefore so much more deadly. Is this simply growing immunity or vaccination? Or what do you see as being the cause of that?

Sebastian Rushworth

Well, I mean, viruses or parasites, and parasites that make their hosts really sick or that rapidly kill their hosts are generally less effective at passing on their genes than parasites that cause more mild illness or no illness at all. So, in general, you see this happen that when a virus first appears in the population,

it causes more severe disease, and over time, it kind of evolves and becomes less serious. You can see this with the Spanish flu, for example, the Spanish Flu hasn't disappeared, it's just evolved and become less deadly. I mean, it's still floating around.

Steven Bruce

Yeah. Martin has just sent in a question about whether the data justifies what he calls the draconian restrictions that were put into place in the UK and other European countries. And I suppose that's an interesting opportunity for you to contrast what happened in Sweden with, for example, what happened in the UK. I think you're probably quite familiar with the way it went over here.

Sebastian Rushworth

I think there are two things that you have to consider when you're thinking about lockdowns and the first is, are they effective? Is there any evidence that they work? And there have been studies trying to estimate this, that have been trying to show, how much did they reduce COVID deaths? And in general, they haven't been able to show any evidence that they have any noticeable effect on mortality. And in that case, it's kind of moved, why are we doing something that doesn't work, but the labs say lockdowns did work, that they were effective, then you move on to kind of a more complicated calculation where you're trying to estimate, well, do the benefits outweigh the harms? Because obviously, if you shut down a society, if you shut down businesses, you make people unemployed, you take children out of school, all these things are harmful, and are going to result in all kinds of unexpected negative health consequences on a population level. But if lockdowns are effective, maybe, if you're dealing with the Spanish flu, or you're dealing with Ebola virus, you're dealing with a pandemic that kills 10 or 20%, then maybe these kinds of draconian measures are perfectly reasonable. But the thing here is that we're dealing with a virus that like we discussed, only has something like 0.2% infection fatality rate that for most people is just a cold, really, and that, especially for healthy people under the age of 50 is really nothing to be concerned about. And then the question is, why is there no cost benefit analysis? Why has there never been any cost benefit analysis? Why are we engaging in these kinds of extreme restrictions when it's impossible that the benefits outweigh the harms? Because the potential benefits of these measures are so small considering the disease is, for most of the population, not a severe threat.

Steven Bruce

Would I be right in thinking, Sebastian, though, that the data, even if you analyse excess deaths over a five-year rolling average from the pre COVID period, there's still the opportunity there for gross error, because it could be that lockdown didn't stop the COVID deaths, but it stopped a lot of other deaths because people weren't getting the flu or colds or anything else. And maybe actually, the lockdowns have actually suppressed what would have been the overall mortality.

Sebastian Rushworth

Well, that seems unlikely just based on, I mean, we know what the infection fatality rate is, and I guess you could argue that we should have massive lockdowns because then we are preventing all infectious diseases from spreading but then I guess you have to consider, well, is that the society that we want to live in? I mean, everyone is free to go out and live alone in the woods and avoid all contact with other human beings and you don't require a lockdown or the government telling you to do that. But is that how

we want to live? Up until 2020 we thought it was worth accepting that we get the occasional infection, but it's worth it, because we like to live in a society.

Steven Bruce

Yes. What about the hospitals? Robert has sent in a question saying, well, surely one of the reasons for the lockdowns was to stop the hospitals being overrun and possibly they were, because nobody was going in with anything else, because they weren't allowed to travel unless it was for COVID reasons because they weren't being seen for heart disease or cancer or any of those other things, were they?

Sebastian Rushworth

Well, so I can't exactly speak about the English hospital situation, but I assume it was similar to the Swedish hospital situation. If we look at this in total, so here in Sweden, the government, in the first wave, they were expecting this massive onslaught of patients and they built a number of large field hospitals, but after a couple of months, they shut them back down again without them having taken a single patient because that massive onslaught never materialised. And I'm not going to say that COVID hasn't resulted in people in hospital but there's always been the capacity to be able to handle that and now it's mainly been done, well here in Sweden by pushing forward elective surgeries. So surgical wards, orthopedic wards have instead been kind of converted into COVID wards, and obviously that's not ideal, but the big problem here is that for the last, I guess 20 to 30 years, at least here in Sweden, the governments have continuously been cutting down the number of hospital beds, the number of ICU beds and we now have a situation and I think the situation is pretty similar in the UK where there is literally zero excess capacity. And that's why I mean, even before COVID, every winter, there was media reporting that the healthcare system was in a crisis. Because when there's no excess capacity, you can't handle even relatively small peaks and every winter you're going to get a peak from the respiratory viruses that are circulating and COVID has really been no different in that perspective.

Steven Bruce

Interesting what you said about the Swedish field hospitals because of course we set up what were called Nightingale hospitals in this country. And I think they were four or 5000 bed hospitals, but I was reading earlier on today, I mean, they only treated about 40 patients, whether that's because they didn't have the staff for the hospitals, which you'd think that the planners would know about in advance or whether there weren't enough patients, I'm not sure. John has said, do you think the multiple lockdowns in most of the West have hindered our ability to develop natural immunity and would the strains have become less virulent if we haven't locked down, and Sweden didn't lock down, did it?

Sebastian Rushworth

Well, no. Sweden didn't lock down. Sweden had, well, I guess it depends on what you define as a lockdown. If you mean forced orders, then no, Sweden didn't have a lockdown, but the government was still kind of recommending people to work from home if they could and to try to keep a few meters distance when they were out in public and common sense type things. So it's not like the Swedish government was telling people to let the virus rip, but it's just that there wasn't any kind of force involved. Businesses weren't forcibly shut down. Nothing like that, like you've seen in some other countries. In terms of the question, well, I don't know, I think Australia and New Zealand have shown that if you're an island nation that's far away from other countries you can potentially prevent the virus getting into the country, but once

the virus is in the country and it's spreading, there's not really that much you can do to prevent the spread. I mean, if you compare the UK and Sweden, even though the UK had more severe measures than Sweden, there's no noticeable difference in the proportion that got sick with COVID or the proportion that died. And I think that just speaks for the fact that most of these measures have a limited impact.

Steven Bruce

That's interesting because only recently a review has come out harshly criticising the response to COVID in this country, that the lockdowns were too late. And, you know, we made lots of other mistakes on the way. And the whole implication is that our death rate has been far higher than other Western countries. Now it could be that it's the same as Sweden's, but Sweden and Britain both have a hugely exaggerated death rate. But are we pretty much the same across Western Europe?

Sebastian Rushworth

Yeah, actually, that's what you'll find if you compare different Western countries, they're all in a very similar place. So I mean, England, Sweden, France, the Netherlands, the US, it's not possible to see any kind of pattern if you're trying to see an effective lockdown or other restrictions. It isn't there, some of the countries that have done the most severe lockdowns have ended up having the highest COVID fatality rates and other countries that have had a very kind of relaxed approach, had very low numbers of COVID deaths, there's no clear pattern.

Steven Bruce

You're not even seeing any correlation between population density. And I would imagine that the UK would be dreadful because we're a very densely packed small island, whereas Sweden, Australia, New Zealand, you'd expect them to be a little bit more spread out, a little bit less packed.

Sebastian Rushworth

Well, I mean, what matters isn't really population density over the geographical area of the country, but rather the proportion of the population that lives in cities. And from that perspective, the UK and Sweden are very similar. I mean, we have lots of forests here in Sweden, but no one lives there. We're all living in cities. So from that perspective, we are just as densely packed over here as you are over there. Yeah, and no, if you look at urbanisation, then well, it's possible that there is some effect of urbanisation that more urbanised countries have higher rates of infection.

Steven Bruce

I've got a couple of comments saying that a lot of what you're saying sounds as though it's personal opinion. Now, from reading your blog, I know that you have actually analysed an awful lot of data, presumably, if people want to see the facts behind what you're saying then they can either get your book or they could look at your blog for more hard figures and so on. Is that the case?

Sebastian Rushworth

Yeah, so I mean, I came into this without any preconceptions, I wasn't intrinsically pro or anti lockdowns or masks or anything. I just kind of wanted to know what the studies were showing and so if people want to see the background to what I'm saying, the actual studies that I'm basing my claims on, the best place to go for that information is the book, everything is referenced.

Steven Bruce

Robin, again on the statistical front has said that his local hospital currently has 64 high dependency cases of COVID, and he says, is that a normal event for flu or colds, etc. And he says, he's not trying to be confrontational, but those are the numbers. I guess, Robin, it might help if we knew what the local population size was, what the size of the hospital is. What do you think Sebastian?

Sebastian Rushworth

Well, I mean, I don't know about your situation in the UK. So it's hard for me to respond. I mean, in Sweden at the peak, when things were at their worst, we had 550 people in ICU with COVID. Which was high. I mean, that was pandemic level, which, I mean, I'm not denying that we've had a respiratory virus pandemic. Even if the virus overall is relatively mild, if it's a completely new virus, there's no immunity in the population at all, then it's going to tear through the population and unusually large numbers of people are going to end up in the ICU at the same time, just because of the fact that it's a new virus, and it's tearing through the population at such a rapid rate and lots of people are being infected at the same time. That doesn't necessarily mean that the virus is extremely deadly when compared with other respiratory viruses.

Steven Bruce

Okay, well, I hope that satisfies Robin. Robin also asked a question following on from what you've just said that about immunity really, is immunity from the disease more powerful than immunity gained from vaccine.

Sebastian Rushworth

So there have been quite a few studies that have been looking at this. And logically, it should be the case that natural infection provides better immunity. And the reason for that is that if you're vaccinated at least with one of the currently available vaccines, you're only developing immunity to one specific part of the virus, which is the viral spike protein. Whereas if you're infected and develop immunity that way, you're developing immunity to multiple different components of the virus and this results in a broader immunity and it's more difficult for the virus to evolve past this immunity, because it requires the virus simultaneously changing massive parts of its genome, which while evolving past vaccine mediated immunity really just requires tinkering with a single protein. So I mean, logically, it should be the case. But now we actually have real world data. And like I said, there have been a number of studies looking at this. And they've generally found that naturally acquired immunity is at least as good in terms of the level of protection offered, when compared with vaccine induced immunity. And now there's been data coming out suggesting that the vaccines are quite rapidly losing their ability to protect, while naturally acquired immunity is continuing to provide the protection at the same level as it did from the beginning. So I would say the evidence at this point shows that naturally acquired immunity is at least as good as vaccine induced immunity and possibly better.

Steven Bruce

Where do you stand on the vaccines themselves? We've said we've had people on the show before who've said, you know, these vaccines are experimental, and therefore, you know, we shouldn't be

trusting the vaccines. Certainly, we've never produced a vaccine in quite such a hurry as we have for COVID.

Sebastian Rushworth

Well, I mean, no one can deny that they're experimental. I'm amazed that people can deny that and keep a straight face because they've only started being used in humans a year ago. And the trials that are designed to answer these questions were supposed to run for two years and they started one year ago. So technically, they should still be running, which means that the vaccines should still be considered experimental. I am most definitely not against vaccines; I think vaccines are a very good thing. And the COVID vaccines seem to offer a high degree of protection. I do think we should be a little bit more careful than we've been with the vaccinations just because of the fact that they are new and, and we still don't understand them completely, we still don't understand the side effect profile. I mean, people were saying after just two months, or three months, the vaccines have been shown to be completely safe now and everyone should take them and it's kind of ludicrous to be making statements like that early in the development of a new drug. And after these statements have been made, there have been revelations that, well, the Astra Zeneca vaccine, for example, can cause serious blood clotting disorders, primarily in young women. And the Pfizer and Moderna vaccines can cause mild carditis primarily in young men and so my personal stance is that it makes sense to vaccinate the elderly, and it makes sense to vaccinate risk groups. But that we should be more careful about vaccinating the young and the healthy, and especially about vaccinating children until more evidence has been gathered and it can clearly be shown that the benefits outweigh the risks. And I mean, considering how extremely low risk COVID is to young people and to children. Even if the vaccine is associated with a very, very small risk, the risks from the vaccine could still easily outweigh the risks from the disease, it wouldn't take much, considering how low risk the disease is for a healthy young person.

Steven Bruce

I suppose that's a difficult question to square for a family that might want to go on holiday, and they can't go on holiday if their children are vaccinated. I don't know if the rules do specify that, but there is a lot of pressure to get every person in the country vaccinated, there is here anyway.

Sebastian Rushworth

I mean, in absolute terms, the risks appear to be low, right? So if you get vaccinated, if you're a young, healthy person and you get vaccinated, the overall risk that you're going to have a serious adverse event is low. I just think considering that the disease is also so low risk, if you're a young, healthy person, it's not clear that the benefit to you of the vaccine outweighs the risks. And I don't personally think it's ethical to vaccinate young people, especially to vaccinate children in that situation, we as adults shouldn't be asking our children to take a risk, even if it's a very small risk for our benefit, if we give them the vaccine, it should be because they personally benefit.

Steven Bruce

That being the case then, how does that affect the overall achievement of herd immunity, which is talked about so much?

Sebastian Rushworth

Well, we have the Delta variant now, which is highly infectious. And there's also been evidence coming out that the ability of the vaccines to limit transmission of the disease is quite limited. And especially against Delta, the ability to prevent transmission is very limited. And in that situation, it's not going to be possible to vaccinate our way out of the pandemic. We're never going to be able to vaccinate enough of the population to be able to create herd immunity that way and it is kind of a risky strategy for creating herd immunity because, well, like I said, the vaccines only produce protection against one part of the virus which makes it not that hard for the virus to evolve in such a way that it becomes resistant to the vaccine whereas with naturally acquired immunity, the immunity is much more difficult for the virus to evolve past and for all these reasons, I mean, the pandemic is going to continue until enough of the population is immune. Naturally, then the pandemic is going to peter out. It's impossible to vaccinate enough of the population to be able to create herd immunity with the vaccines.

Steven Bruce

Yeah. In terms of the vaccine safety, do you have a gut feeling or specific insight into how long you have to go before you can say we're absolutely confident this is a safe vaccine? How long might it be before the last of the long-term side effects might appear?

Sebastian Rushworth

Well, so Peter, Gotzsche. You know who he is.

Steven Bruce

If I can interrupt you, Peter Gotzsche is a fellow Swede, I think, isn't he?

Sebastian Rushworth

He's a Dane actually.

Steven Bruce

A Dane. So he was a founder of the Nordic Cochrane Institute. I brought him up some time ago, because I was very taken by his book about breast cancer screening and whether it was good or bad for the population. And that is the reason that somebody complained about me to the general Osteopathic Council, a complaint which I must add was dismissed. But he's a brilliant mind. And I found the book was fantastic. But yes.

Sebastian Rushworth

He's a legend within evidence-based medicine, he was one of the founders of the Cochrane Collaboration, which all doctors have heard of, which is kind of, well, the Cochrane Collaboration produces systematic reviews of evidence of drugs and treatments. And the reviews they produce are kind of considered the pinnacle of evidence-based medicine. And he was one of the founders of this organization. And he's written a number of books on evidence based medicine, and in one of his books where he talks in particular about drug side effects and how the pharmaceutical industry often does its best to cover them up and how long it takes for side effects to actually come out and become revealed, he makes a recommendation that you shouldn't take any new drug until it's been on the market for at least seven years. Because that's often how long it takes for the authorities to act and to pull Dangerous

Drugs off the market. So from that perspective, if you want to be really safe, you should wait another six years before you take one of the COVID vaccines. I don't necessarily think you have to wait that long. But I think if you're not a risk group, or if you're not elderly, then the risk from the virus is so low that it's really not clear that the benefits of vaccination outweigh the risks. And from that perspective, I think it's worth waiting, certainly for children, it's worth waiting in more data before, before making a decision.

Steven Bruce

Part of the problem I imagine is that every time somebody dies of COVID, and we might get onto how whether you die of, with or because of COVID, every time someone dies of COVID, the press will blow it up if they're in a not at-risk group, right? Because then it's unusual. So if a child dies of COVID, we hear about it. And I imagine that, you know, the risks of the disease are therefore much exaggerated in the minds of most of the public. In that I include quite a lot of the medical profession as well.

Sebastian Rushworth

Well, if you look at Sweden, since the beginning of the pandemic, I think nine children in Sweden have died of or with COVID. And the Swedish state doesn't make a distinction. And all nine were definitely sick in one way or another that they would have been included in the risk group category. So, so far, no completely healthy child, at least here in Sweden, has died of or with COVID. And I mean, if you compare it with some broader statistics, twice as many children have died in Sweden in car accidents since the beginning of the pandemic as have died of COVID. And I mean, Sweden is widely considered to have the safest roads in the world. So the risk of dying in a car accident is very low. And you think that should kind of put it in some perspective, for children, the risk is infinitesimal. At least for healthy children.

Steven Bruce

Yes. Yeah. You did mention, I'm looking for a question which came in earlier on. I don't know who asked the question, but you talked a moment ago about death rates in Sweden and elsewhere. And a number of people have asked this, did all of European countries report deaths in the same way. A moment ago, you mentioned that Sweden didn't distinguish between of or with, how about the rest of Europe?

Sebastian Rushworth

So I'm not an expert on how different countries have chosen to define a COVID death. But at least here in Sweden, no distinction is made. I think you do the same thing in the UK that anyone who dies within 28 days of a positive test is considered a COVID death for the purposes of the statistics, even if they had a positive test and then went out and got hit by a bus.

Steven Bruce

I think that's changed now, the WHO definition of a death, which I think we're pretty much alongside with, is someone who dies of a clinically compatible illness in a possible or confirmed COVID case unless there's a clear other cause such as trauma. So I think that certainly was the case some time ago. And to answer the number of people who've asked about this, when I say was everyone measuring the deaths the same way as the UK, the UK hasn't measured them the same way all the time, we've had four different ways of measuring deaths in this country, including you. I'm sure you must remember this, there was quite an outcry at one point because a death from COVID was defined in Britain as being anyone who had died following a positive COVID test. So it didn't matter how long afterwards, which pretty much

meant that everyone who died after that point was likely to be classified as a COVID death, which is bizarre and ridiculous and was quickly changed. But there is no consistency that I can see in between countries, or even in our case within countries. Joanne has said, she's heard that the curve of the death rate was no different in countries that hadn't locked down than those that did.

Sebastian Rushworth

That's true.

Steven Bruce

Okay. And Joseph here says excess deaths have been used as a measure of the virulence of the pandemic. Do you happen to know what the figures are at the moment? I think we can forgive you, if you don't know the figures for Britain.

Sebastian Rushworth

No, so, I've been keeping track of the Swedish numbers. And well, since January 2021, here in Sweden, there has been no excess mortality, in fact, there's been less than you would expect. If we look at 2020, then there was an excess mortality for the year as a whole and that was driven by the big spring peak, and then partly by the winter peak. And in absolute terms, in a normal year in Sweden, you would expect about 0.9% of the population to die, and in 2020 that number increased to 0.95. So in absolute numbers, 0.05% more of the population died. To me this says something about how deadly the virus is, because you don't have to look back far to find the mortality rate higher in Sweden. In fact, if you go back to 2012, the mortality rate was higher than it was in 2020. And I don't personally remember anything massively deadly happening in Sweden in 2012. If you just kind of track a curve, looking at the mortality over time, you see this massive spike in 1918 caused by the Spanish flu, and then you just see kind of not much happening. You see a small bump during the Hong Kong flu. And now with COVID, you see a small bump again, and it just becomes clear, when you look at these overall fatality numbers that any kind of comparison with the Spanish Flu is completely ludicrous. That was a deadly pandemic. COVID this is much more on par with kind of a bad flu season, a particularly bad flu season, the kind you would expect to see maybe three to four times per century, but certainly nothing like the Spanish flu, which was a massively deadly pandemic that wiped out up to 5% of the global population.

Steven Bruce

Yeah, it's very hard in the face of such media and social media, publicity and misinformation, the exaggeration or the amplification of deaths and so on. It's so hard to reassure people along the lines that you've just said. I think the average member of the public is still desperately worried about dying from COVID, maybe not all of the public. But I still see a lot of people walking around in facemasks in my local town when they've not been compulsory for a very long time. I think many of these are not people who I would imagine are in the vulnerable group. What's the evidence for facemasks actually doing their job? We had somebody on the show some time ago who said actually these face masks are designed to stop surgeons from dribbling into the body cavities of their patients. So their job is not to prevent COVID, obviously.

Sebastian Rushworth

That's true. They're intended to prevent the surgeon dribbling and they're also intended to prevent blood spatter getting in your face and your mouth, if you're doing surgery. They've generally been found to be quite ineffective other than that, and there have been a number of studies pre COVID that have tried to estimate the effectiveness of face masks. The general consensus before COVID was that cloth masks are completely ineffective; they might even actually increase your risk. Surgical masks are better, they appear to result in a modest reduction of infection. And there's only really been one high quality study done since the pandemic began. And it wasn't able to show a statistically significant benefit of masks but it kind of suggested that there might be a modest reduction somewhere in the region of a 10 to 20% reduction in infection spread, which is on par with the earlier evidence that looked at other viruses. So I think that's somewhere in that ballpark is the effectiveness of a surgical mask if you're handling it correctly, and replacing it regularly. These kinds of masks that people just wear continuously, and masks that are made of cloth are completely ineffective.

Steven Bruce

Why did you say they might make it worse, though?

Sebastian Rushworth

There have been some studies that looked at cloth masks that have found more people getting sick in the group that wears the cloth masks than the people who aren't wearing a cloth mask.

Steven Bruce

Interesting because I've been led to believe and it's widely publicized here, certainly that the masks don't protect the wearer at all. They only protect other people. So I wouldn't have expected the cloth masks to protect the wearer, I certainly wouldn't have expected them make it worse for the wearer. Now, Amanda has asked about different types of masks FFP2, FFP3 and IIR. Is there any evidence about the value of different masks?

Sebastian Rushworth

There is some evidence that the higher quality masks provide some additional protection. And as you would expect, these kind of high-quality filter masks appear to provide the best protection and then we have the surgical masks which appear to provide a similar, maybe a little bit worse, but not that much worse protection. And then we have the cloth masks which don't provide any protection at all.

Steven Bruce

Can I turn back to the vaccine again, because I'm just looking at the list of questions coming in here. And we've got a lot of people asking, won't the vaccine prevent non vulnerable people perhaps getting long COVID? Long COVID of course defined I think as symptoms that last beyond four weeks.

Sebastian Rushworth

Long COVID is complex because there's really no good evidence on that yet. There's not good evidence on what it is or how common it is. There was a UK study published towards the end of last year, that was using an app and it found that 98% of the infected population was fully recovered within three months, which suggests that it's rare. It does appear to follow an age gradient. So the risk appears to be extremely

low for children and for older people, it appears to be higher. So to me, that kind of again, speaks to the fact that it makes sense to vaccinate older people and risk groups, but if you're young and healthy, the odds of developing serious or long term problems is low. I mean, I'm not telling anyone what to do, everyone has to kind of weigh the data for themselves. And obviously, that's hard to do and then the question is kind of, who are you going to trust because most people aren't going to have the time to look into all the studies themselves. And my personal thinking is that the younger you are, the healthier you are, the lower your risk from COVID is overall, both when it comes to hospitalisation, when it comes to death when it comes to long COVID. And the more you need to think about it. But, on the other hand, I mean, if we look at the absolute risks, there are no either way, if you get COVID, and you're young and healthy, you're going to be fine. If you take the vaccine and you're young and healthy, most likely you're going to be fine. And so I mean, it really comes down to a personal decision of which risk do you consider worse, I guess.

Steven Bruce

But you particularly, amongst all other medical doctors, are in a particularly difficult position, I would say. We osteopaths, chiropractors, physiotherapists, similarly, because our patients turn to us for advice, and as you've said, the evidence for everything regarding COVID is very, very hard to interpret. And I suspect that many of us fall into the trap of preferring the evidence which agrees with what we already believe, we know it's a well-known phenomenon, isn't it? And, of course, we are there advising our patients. And what do you do when a patient comes in, you said you're not telling anybody what to do? But they will believe what you say before they will believe perhaps their neighbour or the newspaper?

Sebastian Rushworth

Well, so like I said, my, my personal position is that, certainly if you're over the age of 60, or if you're in any way a risk group, you're obese, or you have high blood pressure or diabetes, then I certainly think it makes sense to get vaccinated and if you're under the age of 40, and completely healthy, then you're exceedingly unlikely to benefit from taking the vaccine and then everyone else who's in the middle, it's really not clear. There's just not enough evidence to be able to say what the right decision is.

Steven Bruce

So somebody calling themselves Jay has said, well, what would you recommend for pregnant women then, presumably, most of them are going to be under 40? Would you suggest that they are more vulnerable and should be vaccinated?

Sebastian Rushworth

Well, pregnancy is considered a risk factor. And I haven't personally looked into the evidence enough to be able to say what the right decision is for pregnant women.

Steven Bruce

And Gail is asked about data regarding the spread between vaccinated and unvaccinated people and particularly her interest is in the policy that we are considering of getting COVID passage or vaccine passes in order to get into different venues. Is that something that's worthwhile? Am I less likely to transmit COVID because I'm vaccinated? Presumably, I can still carry the virus even if I didn't react to it.

Sebastian Rushworth

Well, like I said, the more recent data, especially data on Delta suggests that it really is very ineffective at preventing transmission. So I don't think it makes sense to think that you're not going to spread the virus to others if you're vaccinated. It doesn't make sense to think that you're going to be protected if everyone around you is vaccinated. I think really, vaccination is something you do to protect yourself. And that's kind of the extent of what the vaccines can do.

Steven Bruce

Just out of curiosity, Dee has asked this as well. But what's the Swedish policy on vaccination? Is it an attempt to get everybody of all ages including children vaccinated?

Sebastian Rushworth

Yes, the Swedish authorities are very much in line with health authorities all over the world. And, yeah, the general strategy is to vaccinate as large a proportion of the population as possible. And now, they're kind of recommending it down to 16 years of age and below that, if you're a risk group.

Steven Bruce

Is it compulsory for health care workers such as yourself?

Sebastian Rushworth

No. I think that would be very hard to implement in Sweden, for legal reasons.

Steven Bruce

Ah, it's actually legal reasons. I was told actually, one of the reasons Sweden didn't have a lockdown is a legal one. Is it something in the constitution that the government cannot order a lockdown to be enforced?

Sebastian Rushworth

Yes, so the Swedish government felt that the constitution prevented them from implementing the kinds of lockdowns that were implemented in a lot of other countries. After the fact I guess it turned out that a lot of countries have constitutions that prevent them from implementing these kinds of measures, but they went ahead and did it anyway. But the Swedish government kind of stuck to what it was allowed to do within the limits of the Swedish constitution.

Steven Bruce

Yeah. I'd quite like to talk about something other than COVID related issues at some point, but I can kind of put one to you from Steve. Steve asks, what does the evidence tell us about the onward transmission risk of those who have been vaccinated? I know I kind of asked that question a minute ago. Is there any evidence to say that transmission is less likely? I don't consider the Delta variant perhaps.

Sebastian Rushworth

What the original randomised trials didn't even look at this question. So there's no high quality data. What we have is observational data, and it's kind of pointing in multiple, different directions. So it's really hard to draw any conclusions.

Steven Bruce

Right. It is still confusing, isn't it? Should we talk about something else for a little while? See if we can encourage a few questions about, I mean, we can come back to COVID. If, if you insist in a little while, but it would be nice to explore some of the other things that Sebastian has looked into over the last few years. I was thinking talking about diet, actually, Sebastian. In my office, I tried desperately to convince my staff that they should not be drinking semi skimmed milk. Because I think it's worse than full fat milk. But you've written quite a lot about diet. What do you think about saturated fats?

Sebastian Rushworth

Well, there's nothing wrong with saturated fat. I mean, this is well established, going back at least a decade or two, that there's really no connection between saturated fat and heart disease. It's amazing that these recommendations still exist concerning saturated fat. And one thing I think it's worth remembering is that a lot of vitamins are fat soluble. And if you're kind of obsessively trying to remove fats from your diet, then you do run the risk of not getting enough of these fat-soluble vitamins A, D, E, and K.

Steven Bruce

I think I remember reading, I've written this down here, and I think I took it from one of your blogs that the Finnish healthcare guidance was that you should have four pieces of fruit or vegetables or berries every day, two portions of fish every week, 14 grams of fiber for every 1000 calories, and must maintain less than 10% of your calories from saturated fat and I think it was you and you wrote in the comments it was the same ridiculous guidance and unresearched guidance that's been offered across the planet really. Do you know where it came from, why did people assume that this was a good diet? I mean, there's obviously there's no evidence.

Sebastian Rushworth

So I think this is more to do with the kind of political infighting in the world of nutrition than any kind of real science. And there was a group of nutritionists in the late 70s and early 80s, that really came to become very dominant in terms of their influence on official government health and diet recommendations. And what they said really kind of came to become written in stone, and lots of research has continued to be produced since then. But it's like these dogmas are impossible to shift and, and you need 100 times more evidence to change the recommendations than was ever needed to create the recommendations in the first place.

Steven Bruce

Particularly if a celebrity has endorsed it.

Sebastian Rushworth

Absolutely.

Steven Bruce

Ian has asked I mean, this was about pharmaceutical fraud rather than a sort of non-research fraud that is conducted in some of the, maybe nutritional areas. He says there's Dr. Reiner Fuellmich has spoken to over 150 scientists about the global fraud of Big Pharma. Is this a chap you're aware of?

Sebastian Rushworth

I've heard of him. But I'm not that aware of what he's doing or saying.

Steven Bruce

You were telling me earlier on that you read the British Medical Journals. But I think a recently retired editor of The Lancet, I'm going to say, has admitted that you can't trust any of the stuff that's printed in them either, because so much of the medical evidence is based on fraudulent data. And it's very little way, even the Cochrane studies fail to pick it up, because they'd have to spot that the studies they're including are fraudulent in the first place.

Sebastian Rushworth

The problem is that when you present the study for publication, you're only really presenting a small part of the data. And often you're not really required to, I mean, you would assume that when you present your studies, you present the full datasets and everything, all the data you have gathered. But that isn't the case. And if this full kind of raw data was presented, it would be relatively easy for statisticians to go through it and see, okay, this is fraudulent, or this is real data. But since that isn't the case, all we have is kind of final numbers and a short, one- or 2000-word article and it becomes very hard to tell if this data is being produced honestly or not, and that kind of allows fraudulent data to get through.

Steven Bruce

How do you decide yourself, which papers you're going to trust?

Sebastian Rushworth

I don't have any kind of fixed rules, but I mean, I read the paper myself and see, is there anything to make you suspicious and odd? But otherwise, my general principle is that you kind of have to trust the studies, because otherwise there's nothing to hold on to. And then I mean, we might as well just go back to living in caves and using bloodletting as a cure for everything. At some point, we have to assume that most of what is being published is honest and true, because otherwise, we really have nothing to base our decisions on.

Steven Bruce

Well, we're back to COVID already, because on that subject, Robin has asked whether you accept the Israeli study, which apparently shows that the vaccinated are 78% less likely to transmit the virus.

Sebastian Rushworth

I haven't seen that study personally.

Steven Bruce

I've seen the reference to it in the paper, I think. Robin, can you send me the reference? I can look it up, obviously, but if you've got it to hand, that would be interesting to have a look at. I had a slight suspicion. I don't know that Israel wanted to be seen to be doing everything first and best. And again, I'm just a little skeptical. I could be entirely wrong. Because certainly that was the case over here as well, we wanted to be seen to be doing the same thing and miserably failed, it would seem. Matz is saying that the business

about the dietary advice probably came from post war margarine producers, which is possible, I suppose. Okay, Jason says - we're going back to food now - is there any good link for evidence of saturated fats? So many people, even in medicine, don't accept it. I think what Jason's saying is, what are the references we can turn to that would give weight to the argument that saturated fats are healthy? Or at least not unhealthy?

Sebastian Rushworth

So there are plenty of studies, plenty of systematic reviews that have been published on this. And I mean, my impression is that, even among nutrition researchers, this is not really a controversial issue anymore. I think it's just really a matter of time. Like I said, the nutrition guidelines are written in stone for some reason, and are exceedingly difficult to change. But I think this one in particular is going to get knocked down in the next couple of years and disappear from diet guidelines.

Steven Bruce

Well, I'd hope so because I think, personally, I think people do suffer from being given advice like this. And I don't know where you stand on this particular issue. But we've had a couple of speakers talking about either paleo or keto diets. And I think they would both agree that there is not strong evidence for a paleo or keto diet, but there's no evidence for other forms of diet. And there does seem to be some significant reduction in diabetes in people following those diets, which can't make them bad. And of course, they are all heavily fat based, and to some extent, protein as well.

Sebastian Rushworth

I mean, what the Paleo diet and the keto diet have in common is that they both heavily restrict carbohydrates. And I mean, when you have type two diabetes, by definition, what you have is carbohydrate intolerance. And the most effective treatment is to cut down on carbohydrate intake, and in particular, refined carbohydrates. And many people can reverse the disease completely just by doing that. So both paleo and keto diets are, are therefore very effective against type two diabetes.

Steven Bruce

I read that there's good evidence that actually they will completely reverse the condition. I don't know whether that means you could go back to eating carbohydrates and not suffer the problems of diabetes.

Sebastian Rushworth

No, I think they can reverse the condition. But if you've had the habit once, then that shows that you are more sensitive to a high carbohydrate diet, and you should probably avoid it for the rest of your life, I mean, yeah, it should be considered a good way to look at this as kind of being allergic to a high carbohydrate intake if a high carbohydrate intake causes you to develop type two diabetes.

Steven Bruce

But I suppose one of the many benefits is, that actually if you can reduce your drug intake, that has to be a good thing.

Sebastian Rushworth

Yeah, it's a much better strategy to make dietary modifications than to start taking drugs because if you start taking drugs, then you're kind of on this slippery slope, where you're going to end up taking more and more drugs. In the end, you're going to be on insulin, which I mean, ever increasing doses of insulin are not good for you, and they're going to make you sicker. And I mean insulin, the insulin is just going to make you more and more obese, and more and more insulin resistant and the best way to avoid ending up in that vicious cycle is to cut out the carbs instead.

Steven Bruce

So in terms of other dietary issues, do you have a recommended list of supplements that people should be taking?

Sebastian Rushworth

Not really.

Steven Bruce

You're a big fan of omega three, I think, aren't you?

Sebastian Rushworth

Not really I think, really, if people are eating a complete healthy diet, they really shouldn't need to be taking any supplements whatsoever. With the one possible exception of vitamin D, if you're living in a northern climate, I mean like in the UK or in Sweden, and you're spending your time indoors and wearing lots of clothes, there's a high probability that you're not getting enough vitamin D. In that situation, I think it makes sense to supplement with vitamin D, especially in the winter months. Other than that, I think it's better to try to get all the nutrients you need through your diet rather than through pills.

Steven Bruce

I was teasing you a little bit about omega three, because in one of your blogs, you said you've been taking it assiduously for many, many years, and then you read the research.

Sebastian Rushworth

Exactly.

Steven Bruce

No evidence?

Sebastian Rushworth

Well, it might have some benefits. The article I wrote was really only looking at whether it has an impact on mortality, which it doesn't seem to do, at least in the studies that have been done with the limitations that all studies have. That doesn't mean it doesn't have other benefits on cognition or eyesight or something else.

Steven Bruce

Right. I think you said you stopped taking it. So you're not that convinced that it will have those benefits.

Sebastian Rushworth

So I started taking it a long time ago. And I don't even really remember why I started taking it or what I was thinking at the time. And I just decided based on this evidence that I'm not going to take it, at least until I look into the data more and find some more compelling evidence that it actually does have a benefit. And with that said, I definitely think it makes sense to try to get enough omega three in the diet by eating oily fish, for example. So I'm not saying you don't need omega three, I'm saying the evidence doesn't seem to be that strong for supplemental omega three. And of course, it does work out quite expensive if you take it regularly and in the recommended dosage. Omega three is one of the more expensive supplements. So at least from my perspective, I'm not going to start taking it again until I see better evidence that it has some beneficial effect that makes it worth taking. There are studies ongoing actually that look at omega three as kind of a prophylactic to prevent Alzheimer's disease. And I'm very interested to see what those studies end up showing and maybe in the future, I'll change my mind.

Steven Bruce

Well, we would love to know when you have changed your mind and provided we read your blog, I'm sure we'll find out. Final topic, it might not be the last few questions, but a final topic, cardiovascular disease. I don't want to go through statins because I think you're alongside Dr. Malcolm Kendrick on this, aren't you? You don't believe there's any proven benefits of statins? I hope I'm not putting words in your mouth. What about the latest drugs? PCSK I want to say, but I probably got the letters in the wrong order.

Sebastian Rushworth

Well, I'm not completely against statins. I think the evidence shows a small benefit in real terms. Then we have these new drugs the PCSK nine inhibitors, I mean, there's not that much good evidence on them yet, but the evidence that there is kind of promising but at the same time, they're new, they're hugely expensive. From a theoretical perspective, there's reason to think that they would be better than statins just because their mechanism of action is much more direct. And they don't inhibit cholesterol synthesis. The problem with statins is that they inhibit the ability of cells to produce cholesterol and cholesterol is a critical molecule for cellular function, for hormonal signaling. And most of the side effects connected with statins probably come from the inhibition of cholesterol synthesis. So from that perspective, PCSK nine inhibitors should cause noticeably less side effects. And so the studies that exist are promising, but what we really need is longer term studies and studies that have been done by independent institutions, because all the studies that have so far been done have been done by the pharmaceutical companies themselves. And obviously, that kind of makes them less reliable to an extent.

Steven Bruce

I remember reading in Malcolm Kendrick's books and blog posts and so on that there is no reliable evidence that shows that simply reducing cholesterol levels, serum cholesterol levels, has any effect on cardiovascular disease, and that the common association with statins and reducing cerebrovascular accidents, strokes is completely false. There's no evidence for that at all. So why would the PCSKs be better than statins? I mean, okay, fewer side effects that's good. Not reducing the synthesis of cholesterol. Yeah, that's good. But actually, if reducing cholesterol doesn't have any effect on cardiovascular disease. What's the point?

Sebastian Rushworth

Well, so I mean, I agree with Malcolm Kendrick that the LDL hypothesis does not explain heart disease, there are lots of different conditions that increase your risk of heart disease that have nothing to do with increased, well, not cholesterol, but LDL since that's what's widely believed to be the real cause of heart disease. That doesn't mean that LDL doesn't have some role to play and in causation, or does it can't contribute to heart disease? I agree with Malcolm Kendrick that LDL is not the main cause of heart disease, but I'm not sure that it doesn't have any role, or I think there might still be something it does. There are observational studies that show that people with a defective PCSK nine gene, which is a gene that regulates the number of LDL receptors that you have on liver cells, that people that have a defective version of this gene that causes them to overexpress the LDL receptor end up having less cardiovascular disease, and it's hard to explain that finding. If LDL has no role in heart disease at all, and I mean, we've kind of zoomed in on LDL. Initially, the belief was that it was cholesterol that caused heart disease, because that was kind of the only thing that scientists were able to test for in the 50s. And then it was found that the correlation is better if you look at LDL and more recent research has found that the correlation is even better still, if you look at the subset of LDL, the small dense LDL, and well, I would say that the jury isn't out yet.

Steven Bruce

Yeah, I think there are numerous people, Malcolm Kendrick included, who have questioned whether that correlation is actually causation or whether it's effect, but as you say, we perhaps don't know just yet. One last question possibly. We always get interesting questions from Daniel. Daniel says, what are your thoughts on the use of MCT oil, which has become very popular in recent years? If any?

Sebastian Rushworth

I don't really have any thoughts. I haven't really looked into it personally.

Steven Bruce

I'm sorry Daniel. We'll have to come back to that one next time. I'll try and urge Sebastian to look into that one at some point and then we're getting back in six months' time. Somebody said here Dr. Rushworth, do you ever read novels because you clearly spend a lot of time reading research and other serious material. Going back to the blood clots, Robin Moody's asked whether they're, you know the incidence of myocarditis and blood clots in the two vaccines that you mentioned, or the three vaccines you mentioned.

Sebastian Rushworth

What the incidence is?

Steven Bruce

Yeah.

Sebastian Rushworth

So there's a wide spectrum, anywhere from one in 20,000, to one in 500,000. And when it comes to myocarditis it ranges from one in 1000, to one in 200,000, something like that. So there's an enormous range. And it's not really clear yet what the reality is. I think, one thing that's worth remembering is that

when authorities say that these side effects are extremely rare, they're often basing it on the number of reports that they're getting in. And the vast majority of drug side effects don't get reported. And it's been well known for years that only maybe one to 2% of side effects to drugs actually get reported to the authorities and I think that's the case now, too, with the with the COVID vaccines, certainly when I speak to colleagues, most of them aren't even aware how you're supposed to do the reporting if you suspect the side effect to a drug and that means you have an accounting that's based on what's actually reported to the authorities will end up being a gross underestimate.

Steven Bruce

Thank you for that, Sebastian. Thank you for all the information you shared this evening, the time has flown by, I've thoroughly enjoyed the conversation. I'm sorry to put you through this. It's a little bit later where you are than it is here. But we've had more than 400 people watching and lots and lots of good feedback. Apparently, there has been a certain amount of analysis going on about the light shade behind you. And this consensus is that it must be IKEA, but more data is required I'm told.

Sebastian Rushworth

It is IKEA.

Steven Bruce

Thank you so much for your time, it's been a great pleasure. I would love to say let's get you back in the future. But if your working life is anything like that of a junior doctor in this country, your time is very precious, I imagine. But we're very grateful for it this evening. Thank you.