Vaccine

“I would probably prefer to have natural immunity” – Dr Byram Bridle (Viral Immunologist)

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Dr Byram Bridle

Dr. Bridle is an associate professor and viral immunologist in the Department of Pathobiology at the University of Guelph. His research interests include developing a better understanding of how the immune system responds to viral infections as well as designing immunotherapies for the treatment of cancers and infectious diseases.

He is also passionate about teaching immunology and contributing to the training of Canada’s next generation of researchers.

He gave this talk to the COVID Plan B group which opposes the official narrative of the deadliness of Covid-19 and its continuous new strains, the necessity of the lockdowns and the theory of elimination, and instead proposes treating the coronavirus like the seasonal flu (using vaccines). His slides.

Transcript

HOST → 00:00:00

To the next person. That's someone that many people that are listening in have been keen to hear again, Byram Bridle, who was with us last time in our last presentation. And he's a viral immunologist from the University of Guelph in Canada. Byram, are you with us? Can you hear us?

BYRAM BRIDLE → 00:00:22

Yes, I am. Thank you for having me

HOST → 00:00:25

Yeah, actually we can. Oh, and a very good backdrop. Right, Byram, thanks very much. We are going to be fascinated to hear what you're going to talk about today because your last presentation was so illuminating about how how viruses work and how vaccines treat them. It was an education and a very valuable one. So turn it over to you if you want. Fire away.

BYRAM BRIDLE → 00:01:01

Okay. Thank you very much. All right. I just need to get my presentation up.

HOST → 00:01:06

I think the title of your presentation is 'Answers to outstanding questions about COVID-19 vaccines that are going to dictate the success or failure of the rollout', which is top of mind as we've been seeing in the past two presentations.

BYRAM BRIDLE → 00:01:23

Exactly. So let me just see here. Okay. Perfect. Yes. So thank you again to the organizers for having me here. It's my pleasure to return and give an update about vaccines.

So indeed I presented back in October and that was dealing more with the with whether or not we thought we would have vaccines ready by now, which obviously we do.

And so now I'd like to talk about, I've been asked all kinds of questions about these COVID-19 vaccines. And so what I thought I would do today is I'm going to try and get through this presentation fairly quickly, because I'd rather have the people attending these talks, you know, have a good opportunity to ask their questions and I'm happy to try and address any questions to the best of my ability.

BYRAM BRIDLE → 00:02:13

And these questions are very important. So what I'm going to do is I'm going to give this presentation after the first few slides is going to be given as a question and answer type of presentation.

What I've done is I've taken a handful of the questions that have probably been asked most often, and I'm going to try and address them as part of this talk.

So that will hopefully address a lot of the questions that that attendees will have. But it certainly won't cover them all. So certainly feel free to ask whatever questions you have at the end. So, first of all, just a disclosure statement because I think it's very important when people are presenting that you understand if there's any potential conflicts of interest. So, first of all, I want to point out that I am a researcher.

I do a lot of work. I spent my career developing vaccines. I have never received any research funding from any industry sources. I have received funding from the government agencies that I have listed here. So we have two federal funding agencies, the Canadian Institutes of Health Research, and another one, the Natural Sciences and Engineering Research Council of Canada.

These are actually dedicated towards some basic fundamental research on viral immunology and they, and developing vaccines for cancers. Now, what I want to point out is that... Oh, and then I had some funding from the Canada Foundation for Innovation for equipment that I purchased. And then the last two that you see listed here are actually dedicated towards COVID-19 research.

So I do have a COVID-19 vaccine development program going on. And the vaccines that we're developing realistically wouldn't be able to go into human clinical trials for at least another year and a half, maybe two years.

BYRAM BRIDLE → 00:04:00

So we're actually designing these as platforms, technological platforms to treat, or try and deal with future pandemics, which it's not a question of what, sorry, when I say pandemics, hopefully not pandemics, but for future outbreaks of novel coronaviruses. And it's not a question of, will that happened, but rather when that will happen. So I just wanted to disclose that.

And then as well, I just wanted to point out to you. So I I'm a viral immunologist. That means I have expertise in the fields of virology and immunology.

And I work at the interface of the two and I've spent a lot of time developing vaccination strategies to prevent infectious diseases and also to treat cancers.

And I really want to point out something here. So I do a lot of teaching and I teach all of my students the value of high quality in order to have these <inaudible>.

BYRAM BRIDLE → 00:04:54

So high quality and well validated vaccines and I very passionately promote their use. Okay. And this is because vaccines are, in my opinion, by far the most efficient type of medicine that we have. All right. They cost-effectively save millions of lives around the globe and they save people from both sickness and death.

And as a consequence for the sake of global health, we absolutely need people to maintain faith in vaccines in general. We don't want to see a resurgence of diseases such as tuberculosis, right? That are otherwise relatively well-controlled in most parts of the world.

And so with that said, I just want to differentiate two terms we've been hearing a lot about during this pandemic:

1. One is anti-vaxxers. And usually when that term is used, it's often referring to people who tend to hold an extremely negative view of all vaccines, regardless of what the scientific data has to say about them.
2. But I want to highlight that vaccine hesitancy is very, very different. And a lot of people who have the vaccine hesitancy are being made to feel very bad these days, right? It's as though if they were simply educated enough

> about vaccines, then they would have no problem with these COVID-19 vaccines. But that's not the case. That's not the definition, certainly that I use. These are individuals instead who are unsure of their commitment to taking a vaccine. And it's usually because of outstanding questions. So in other words, the onus is not on the individual. It's not that the individual simply needs to be educated. We have, there's lots of people who are very deep thinkers about this, doing their own research about the COVID-19 vaccines and coming up with very legitimate questions.

We're in a unique situation with these vaccines. There's questions that are unanswered now that were never unanswered at this point for previous vaccines.

BYRAM BRIDLE → 00:06:49

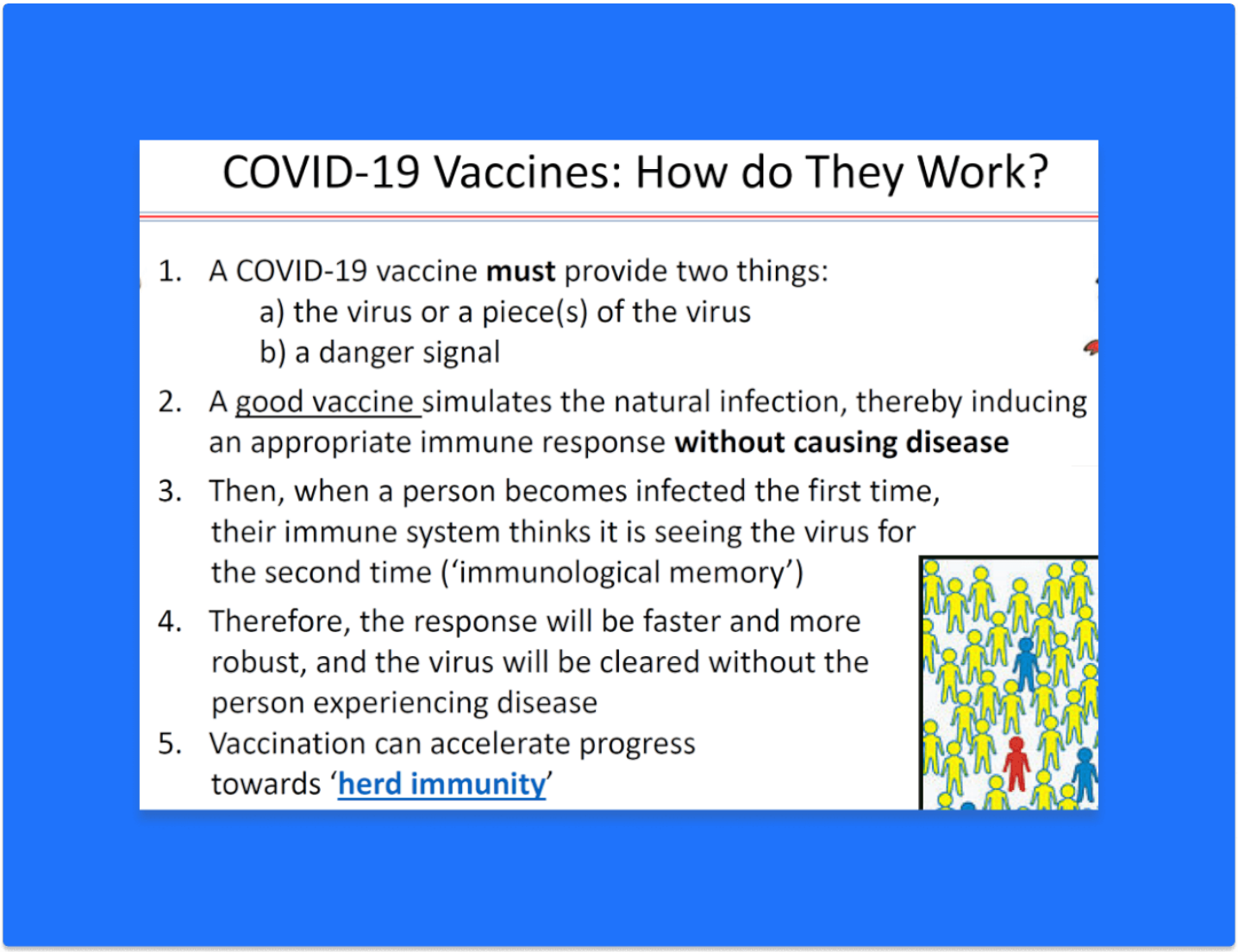
And so rather than the onus being on the individuals, I would argue the onus is on the manufacturers and the health regulatory agencies and our governments to provide answers to these legitimate questions that many people have.

And in fact, that's what I want to focus on today are some of these what I consider to be very legitimate questions that people have. Okay. And I also want to point out that as a public servant, I work at a university. I'm an associate professor. And so I'm within the academic center or a sector. I'm paid out of tax dollars. And I have a lot of expertise in developing vaccines.

So as a consequence, I view it as my personal responsibility to highlight what these outstanding questions are for people and to do my best to provide fact-based assessments of their potential implications.

BYRAM BRIDLE → 00:07:37

All right. So that's the background leading into this talk.



And then I just want to, in one slide, just very briefly go over at a very high level, how vaccines work, right.

So we're talking about COVID-19 vaccines. So again, COVID-19 is the disease. The disease is caused in some people and certainly not all. The disease is caused by a virus known as SARS coronavirus two. So what these COVID-19 vaccines, what we're vaccinating against is the virus, the SARS coronavirus two, and any vaccine has to provide two things to an individual.

So when given a vaccine, the two things that are required for the immune system to respond to that is first, the vaccine must contain either the virus or a piece or multiple pieces of the virus in this case, SARS coronavirus two. So in the context of the vaccines that we've heard probably most about, which is Pfizer and Moderna, these are, we call messenger RNA vaccines.

They have a little piece of genetic material that when it gets inside a cell, it uses the machinery in our cells to produce a protein. So what these are targeting is a single piece of the virus.

And that piece of the virus is known as the spike protein, or the S protein. The spike protein is called that because when you see the virus under a high-powered microscope, it has all kinds of spike-like structures that stick out from its surface.

And the virus uses these spikes to bind to our cells and enter our cells. So in fact, all of the front runner vaccines are targeting the single piece of the virus, this spike protein. And then the second thing that a vaccine has to provide is what we call a danger signal. So many of you may have heard, for example, the the term adjuvent.

So often vaccines will contain an adjuvant, and that provides a danger signal. Our immune system will not simply, it doesn't just automatically respond to a target because for example, we don't want to have autoimmune diseases, right?

So we don't want to respond to self. So as a consequence, we require the second signal, our immune system will only respond to a piece of the virus if it's accompanied by a dangerous signal. So it tells her immune system that that target is dangerous and therefore worth responding to, and any good vaccine, a well-designed vaccine should simulate the natural infection with that virus.

And if it does a proper job of simulating the natural infection, it will induce an appropriate immune response. That's important because there's two very different types of immune responses that we can generate.

One is very good at getting rid of pathogens that live outside of our cells, such as bacteria.

And then there's the responses that we want against SARS coronavirus two. That uses effector mechanisms that are very good against the pathogens that get inside our cells.

And the mechanisms that are used to target those two very different types of pathogens are very different.

So that's why I say we want the vaccines to induce an appropriate response. An inappropriate response could either be non protective or even dangerous. It could actually promote things like vaccine enhanced disease.

So the next thing and the reason, so the reason why a vaccine works when they're well-designed is when the person actually becomes infected with the virus itself for the first time, that person's immune system thinks it's seeing the virus for the second time.

And this is because all vaccines are designed to induce what we call immunological memory. So our immune systems remember what they've seen in the past.

BYRAM BRIDLE → 00:11:25

So if you use a vaccine to induce a response against the virus at the end of that vaccination regimen, if it's worked properly, you'll be left with immunological memory. Your immune system will remember what that piece of the virus looked like.

And for all the current vaccines, again, that's a spike protein. So to remember what that spike protein looked like, then when you first get exposed to SARS coronavirus two, your body should respond to it based on this immunological memory.

Once you have immunological memory, this second exposure to the target, which again, would be the first time you're actually seeing the virus is what we call a secondary response.

And secondary responses are much faster, and they're also much more robust. They're so fast and have such high magnitude that usually you can clear the virus before it can cause any damage to the body.

BYRAM BRIDLE → 00:12:16

And therefore, and that's why a vaccinated individual ideally will not experience disease. So that's if the vaccines work properly. And importantly, you know, you've already been hearing a lot about this in the, in the talk today, herd immunity, and so indeed, vaccination is considered a safe way to accelerate progress towards herd immunity.

And what that means in a nutshell is shown by this figure over here. So you'll see all these yellow colored people in this population. So in this diagram, the people in yellow are those who have been vaccinated. All right. So they've received the vaccine.

The people in blue here are people who have not received the vaccine, all right, and are therefore susceptible to infection. And then the people in red, these ones have the coronavirus, right? So they're actively infected. So this is what we're all aiming for. Every country in the world.

BYRAM BRIDLE → 00:13:12

Right now, we want to have enough people in yellow. So people who are immune to the SARS coronavirus two. Such that the few people who might get infected within the population, chances are these people, although they're infected, chances are they are going to physically encounter people who are immune.

And that literally serves as a physical barrier preventing the virus from being able to get to those who are non-immune and susceptible to infection, right? So this is the concept, and this is why we can get rid of this virus by having most people immune to it.

But we do not need to get everybody immune to it. And it's because of this phenomenon right here. Okay. So that's the goal. Now, this actually is a follow on to the first talk that I gave at the first international COVID-19 symposium. And at that time I, you know, I've been questioned about this quite a bit, which is interesting.

BYRAM BRIDLE → 00:14:12

So, because my take was that there's no way. There was no way that we would reasonably have good, well-vetted COVID-19 vaccines available now and available within a year from the beginning of the pandemic.

And that's because traditionally vaccines took about 10 years to traverse the clinical trial pipeline. And in fact, the previous record was, and I have it in quotes now, because now you might argue, it's not as astounding, but it was an astounding four years. And that was by the company Merck. And that was for an Ebola vaccine.

And so, but what I do want to point out is for those of us who were asked to comment on what the typical timeline is yes, we were way off in terms of how quickly these vaccines have now been rolled out.

But this is because these COVID-19 vaccines have reached the public rollout phase by, and I'll say it in quotes, "cutting corners". And by cutting corners, I'm not implying that people were skipping key steps, although honestly, there could be some potential questions around that.

BYRAM BRIDLE → 00:15:18

But what I mean by this is when we were asked to comment previously on how long it takes these vaccines to be developed, that was based on the understanding that the roll out would follow the typical timeline, which is that companies would complete phase three clinical trials, and then they would conduct the analysis.

They put together the reports, they publish the data, and these reports would go to the regulatory agencies. And then the regulatory approval itself could take quite some time. That certainly has been dramatically shortened. And then they would be approved.

So in this case, none of us were expecting, I don't think, that the vaccines would be rolled out very early on in the phase three clinical trials. So the phase three trials are not done. So in essence, what this means is the public rollout right now is an extension of the phase three clinical trial.

BYRAM BRIDLE → 00:16:04

So those being vaccinated now are, whether they realize it or not, part of the phase three experiment, the part of a vaccination experiment and the companies have openly acknowledged this in their reports to the regulatory agencies, because, for example, there's a minimum period of time for which they have to track things like the safety of the vaccine.

And indeed they've even indicated that. So most people, you know, we're used to as scientists, usually being able to see published scientifically peer-reviewed data before the vaccines are rolled out. And this won't happen for probably for about two more years.

And the reason for this is because it's going to take that long to complete the phase three clinical trials, because a phase three clinical trial, it can not be declared complete until they have monitored the safety of the vaccine for multiple years.

BYRAM BRIDLE → 00:17:02

Okay. So this is important to keep in mind. So as a consequence, these have been approved in a remarkable time, but that alone has raised some legitimate questions that are unique to these coronavirus vaccines.

And also I want to highlight that the nature of the virus itself – and I'll get into this in a little bit – and as well, some very perplexing decisions about the rollout are raising additional questions that I would consider quite legitimate.

So I guess my prelude to this now is COVID-19 vaccines have indeed raised hopes that the pandemic is nearing an end. And I like all others, you know, are hopeful that this is the case, because we'd all like to get out of these severe lockdowns or just the general isolation that we're in.

And so we all hope that this is gonna be true, but there, I want to highlight some potential sticking points.

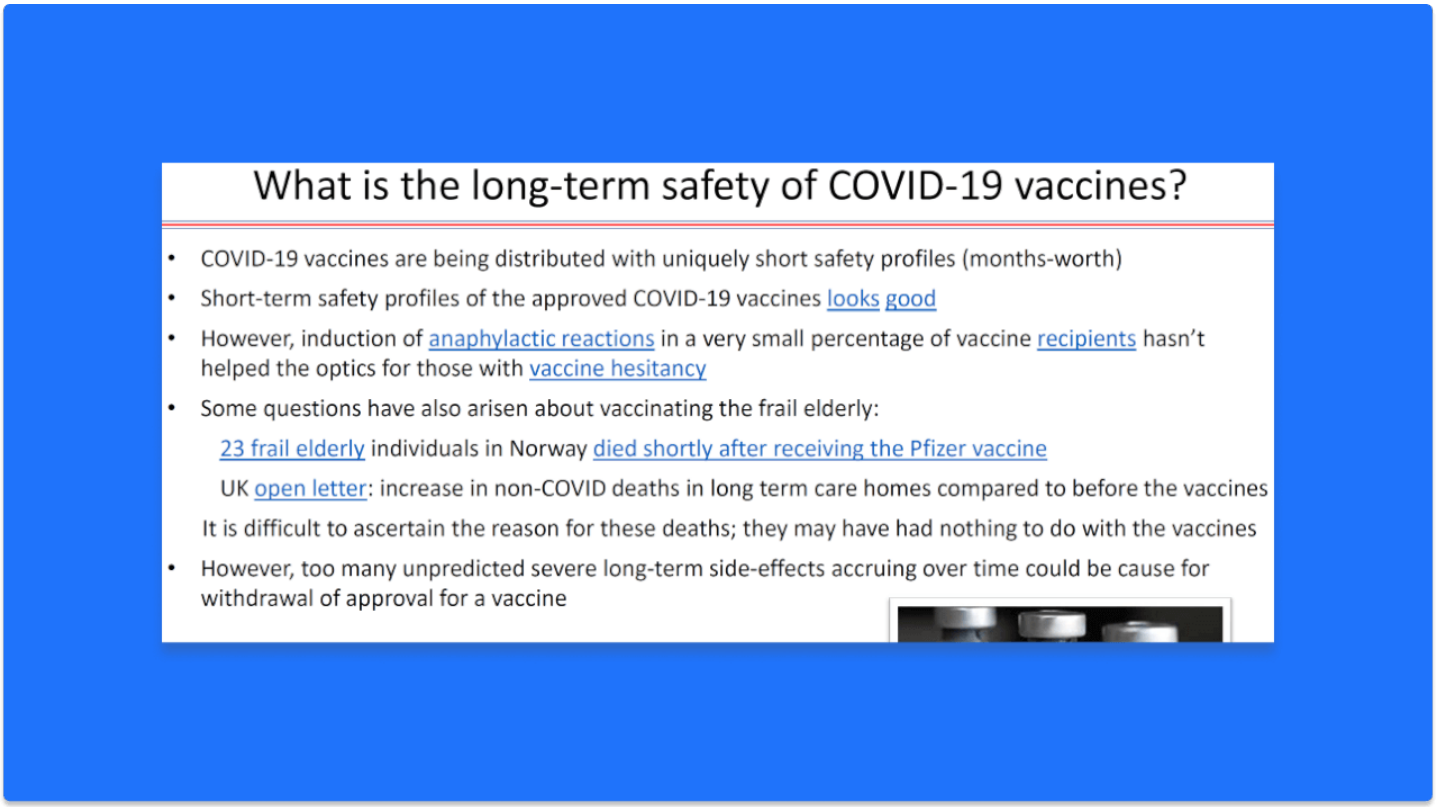
BYRAM BRIDLE → 00:17:58

Okay. Because again, as an academic scientist and a public servant, I hope that the end is near, but I don't want anybody if the vaccine rollout does not go as planned, I don't want anybody left asking the question, you know, why didn't anybody tell me that there was a possibility of failure of the rollout?

So I just want to highlight now through a series of questions and answers, what these potential sticking points might be.

And I also just want to point out that... The first one is, and this has been alluded to, in some of the previous presentations, right?

What is the long-term safety of COVID-19 vaccines? So, again, as I just mentioned, these COVID-19 vaccines are being distributed with uniquely short safety profiles, right?



BYRAM BRIDLE → 00:18:55

So again, these vaccines didn't exist you know, 10 months ago and as a consequence, and that, of course, and then they had to go through a series of trials and the last trial is the phase three clinical trial.

These are the large trials where these vaccines have to demonstrate that they're safe. All of the safety assessment begins in the phase one clinical trial. So they have to show confirmation of safety and they have to show that they work.

So what this means is these vaccines have been rolled out with only months worth of data. So in the ballpark of about three months for these vaccines, right? So we know that they have that the short-term safety profiles look, look pretty good, right. And that's why they were approved.

BYRAM BRIDLE → 00:19:36

However, and this was mentioned as well. There's some things that have been occurring and it tends to be in a very small percentage of vaccine recipients, right? The previous speaker was talking about this. Especially as individuals, you have to do your own risk assessment when it comes to vaccines.

Clearly I agree with the previous speaker, 100%. For example, with children, there's no question. Children, especially children under 10 are at greater risk of dying from the annual flu than they are SARS coronavirus two. So I have very little concerns for children.

But if you're, if you are very elderly, there's no question that SARS coronavirus two can be quite dangerous. So everybody has to make their own personal assessments, personal risk versus benefit assessments.

> FEBRUARY 12, 2021
>
> “those being vaccinated now are, whether they realize it or not, part of the phase three experiment”
>
> **DR BYRAM BRIDLE**
> Professor of Viral Immunology

But what I do want to highlight is even on the very first day of the roll out of the first approved vaccine.

BYRAM BRIDLE → 00:20:29
The first day that it was that the Pfizer vaccine was used in the United Kingdom, there was demonstration of anaphylactic reactions, And this wasn’t found in the clinical trials, the phase three clinical trial. And this is a life-threatening condition.

It’s basically an allergic response. And you can get closure of the airways and the lungs, and it can be life-threatening. And it usually occurs within minutes, within minutes of receiving a, whatever it is that would cause this reaction. So in this case, the vaccines.

So the people who’ve had these anaphylactic reactions develop them within, it’s usually within one to two minutes or one to three minutes. It can be very quick. And so, as a consequence, a lot of these vaccines now have to be rolled out at centers. Depends on the country, but many countries now want them to be rolled out in centers where there’s the potential to resuscitate individuals who might collapse with an anaphylactic reaction.

BYRAM BRIDLE → 00:21:31
And obviously, whether or not, you know, this is a very small percentage, but this obviously has important optics for those who do have vaccine hesitancy.

And then there’s some interesting data that’s been emerging. So in Norway, there’s investigations about some frail elderly individuals that died shortly after receiving the Pfizer vaccine. Now it’s important to know that this is a very, there’s a very specific definition for those that we call frail elderly. They usually have multiple pre-existing conditions, and they tend to be very sensitive to side effects of therapies.

So it’s not all, it’s not just the general elderly population. Okay. And then more recently, it’s interesting, there was an open letter that was published and you also may notice whenever there’s these highlighted terms, the hosts of this event are welcome to share this presentation with anybody who wants it.

BYRAM BRIDLE → 00:22:28
And so wherever you see these highlights, I have links to sources that provide data to back this up.

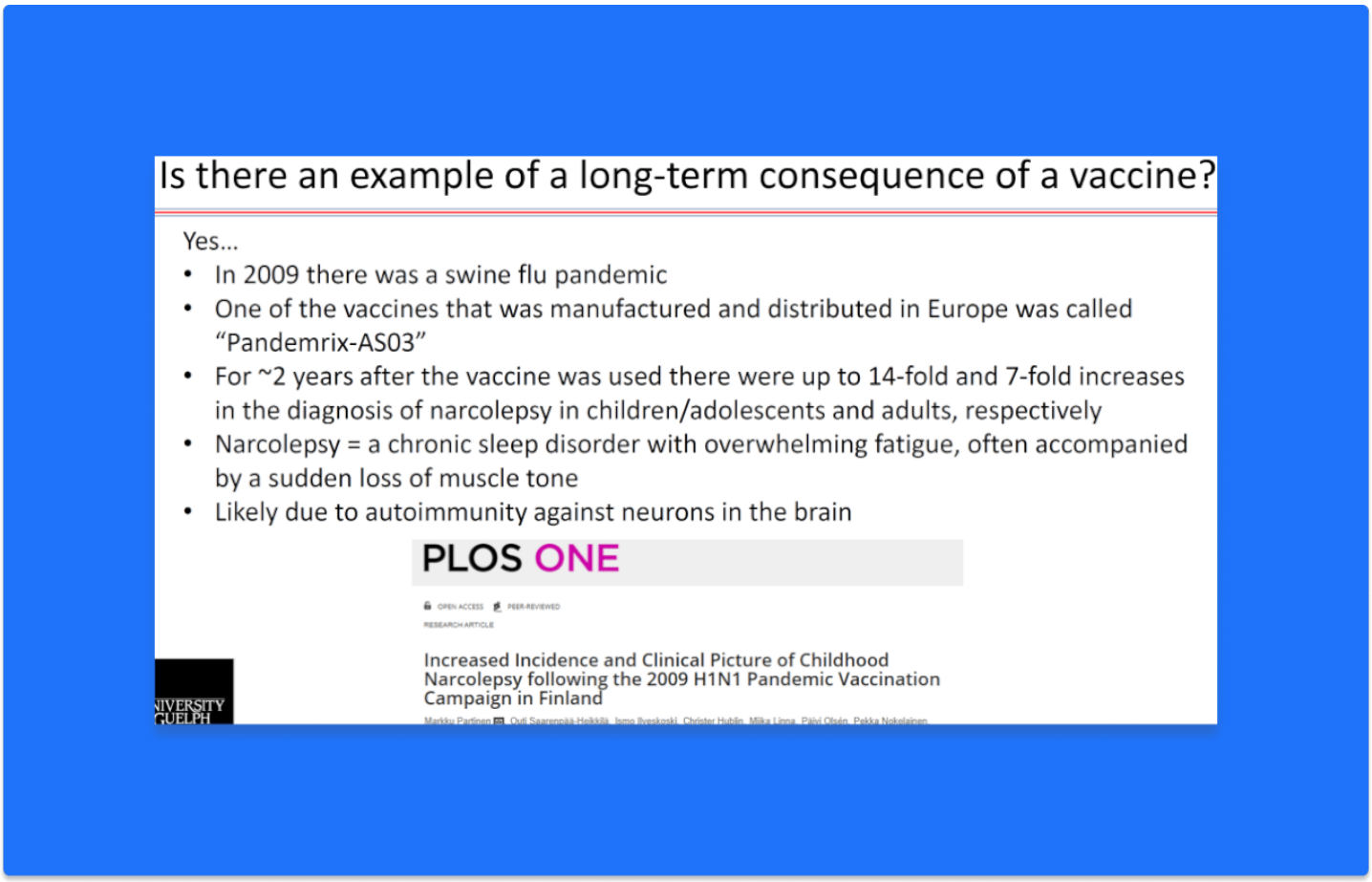
So the, in the UK, there’s an open letter from physicians where they’ve been concerned because they’ve actually seen an increase in non COVID, so deaths that are not directly caused by the SARS coronavirus two. So these non COVID deaths in long term care homes, compared to before the vaccines were rolled out.

Now, one of the things I want to point out again, relatively small numbers, we know the population, you know, again, is focused on the frail elderly. And one of the things I do want to highlight is it’s very difficult to ascertain the reason for for deaths, post vaccination deaths, or any adverse effect that might not be associated with death as well. And the reason for this of course is after vaccination life goes on.

BYRAM BRIDLE → 00:23:19

And what I mean by that is after somebody has been vaccinated, there are hundreds, probably thousands of other variables that occur in their day-to-day life that could have contributed to the problem. So it's very difficult. So the only way we can really determine if it's related to the vaccine often is just is with a large body of data that allows you to generate a very strong correlation. Okay.

But what I think what's obvious here regardless is if these vaccines over time were to accrue a track record of causing too many severe, overly severe unpredicted side effects, this could potentially be cause for withdrawal of a vaccine.



So that's the point here. Now I have been asked as well. So is there any historical precedent for long-term consequences emerging. Or, because many people have the understanding that if the short term safety profile is okay, probably there isn't going to be any long term problem, but indeed there is.

BYRAM BRIDLE → 00:24:22

So in fact, it was also from a pandemic, the swine flu pandemic that was declared in 2009. So this was kind of interesting.

In Europe, and it was intended to be mainly specific to Europe. There was a specific version of this swine flu vaccine, known as Pandemrix, that was distributed in Europe.

And what was noticed is after about two years there was an accumulation of data suggesting that there was a 14 fold and seven fold increase in what's called narcolepsy in children and adolescents.

So they had the children, the younger ones had the 14 fold increase. Adults had a sevenfold increase, and narcolepsy is a chronic sleep disorder where people experience overwhelming fatigue. And often they'll get this sudden loss of muscle tone as well.

And it's thought to be probably caused by autoimmunity against neurons in the brain.

BYRAM BRIDLE → 00:25:19

And one of the places actually, where this stood out the most was it was in Finland. Now, what I want to point out is, again, as longer term it again, because because life goes on and it's hard to make a direct link between a vaccine and some kind of outcome. It took a large accumulation of data. So it took about two years before there was sufficient data for this to start becoming reasonably obvious.

And then you can even see the paper here, reporting this, wasn't published until 2012, and this is dealing with a pandemic in 2009, right? So it took about three years before this problem to be identified.

So yes, there are examples potentially of longer-term consequences emerging. Now here's another one that's very important. People have been asking me and I mean, they really need to ask the vaccine manufacturers, right?

BYRAM BRIDLE → 00:26:05

What is the duration of immunity of these COVID-19 vaccines? So again, if we harken back to what I was talking about with the typical timeline for generating a vaccine, which was historically in the ballpark of 10 years, that meant by definition that by the time we were rolling out these vaccines, we knew that these vaccines would confer long-term immunity, right?

We'd be confident these vaccines could protect individuals for multiple years. And so what duration of immunity is in its essence is how long a person's protected after they've been vaccinated. So once you've received the vaccine, a COVID-19 vaccine, how long will you be from SARS coronavirus two.

Now, because these vaccines have been rolled out so rapidly. Again, we only have a few months worth of duration of immunity data. All right. And so far so good.

It's three months out, these vaccines seem to be maintaining a good magnitude of immunity, but here's the potential problem.

BYRAM BRIDLE → 00:27:11

If that immunity were to decline. And in other words, if individuals were to start to lose protection, the protection conferred by that vaccine before herd immunity is achieved the previously vaccinated individuals – so in other words, for individuals who are already vaccinated if it takes another, let's say 10 months to get everybody else in your country vaccinated, but the duration of immunity happens to only be six months – that means that that by the time the individuals are being vaccinated towards the latter part of the rollout in your country, you who were vaccinated early on are now susceptible again. And the virus is just simply going to start circulating through that population that was vaccinated early.

This is one of the reasons why everybody's struggling to get these vaccines ruled out quickly.

Now, this is one that could potentially be controversial, but again, the conclusion I think is just common sense at the end.

BYRAM BRIDLE → 00:28:15

Are COVID-19 vaccines as effective as we have been told. And I've been asked this quite a bit because people have been noticing different things coming up in the news. So we know that the public declarations of effectiveness for Moderna and Pfizer were more than 90%.

In fact, with their two dose regimens, each of them had about 95% effectiveness. Now, one of the things that I want to highlight, which has been unfortunate for the optics here, is Pfizer did not publicly disclose any point, meaning they did not disclose this in any media release. They also published an interim, a paper on interim results from their phase three study.

And it wasn't indicated in that publication, right? So they never disclosed that the numbers of suspected, but unconfirmed cases of COVID-19 were excluded from their calculation of efficacy.

BYRAM BRIDLE → 00:29:09

Now. So what I mean is their 95% effectiveness was calculated based on 170 people, volunteers in their trial, naturally acquiring COVID-19. And it turned out that just a handful of those that got COVID-19 were in the vaccinated group.

The majority were in the unvaccinated group, that's where they got this 95% effectiveness, right? So 95% of the time people would, that were vaccinated, 95% of them would not get COVID-19.

However, so that was 170 people. However, they failed to disclose that there were thousands who were excluded from this efficacy calculation. And that's because for some reason we still don't know why they were uncomfirmed. As you can see, there were suspected, but unconfirmed.

> **FEBRUARY 12, 2021**
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> "Children, especially children under 10 are at greater risk of dying from the annual flu than they are SARS coronavirus two."
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> Professor of Viral Immunology

They didn't have this PCR test that you might've heard about where you get the swab. And then the test looks directly for whether or not the virus is present in your body.

BYRAM BRIDLE → 00:30:09

So this was the confirmation wasn't done. And this was only revealed in a summary report that was issued later by the United States food and drug administration, their health regulatory agency.

Now it's interesting as a re-analysis with these new data taken into account was actually performed by the associate editor of the British Medical Journal. Now just called the BMJ. Alright. I do want to point out this is a non peer reviewed opinion letter. Okay.

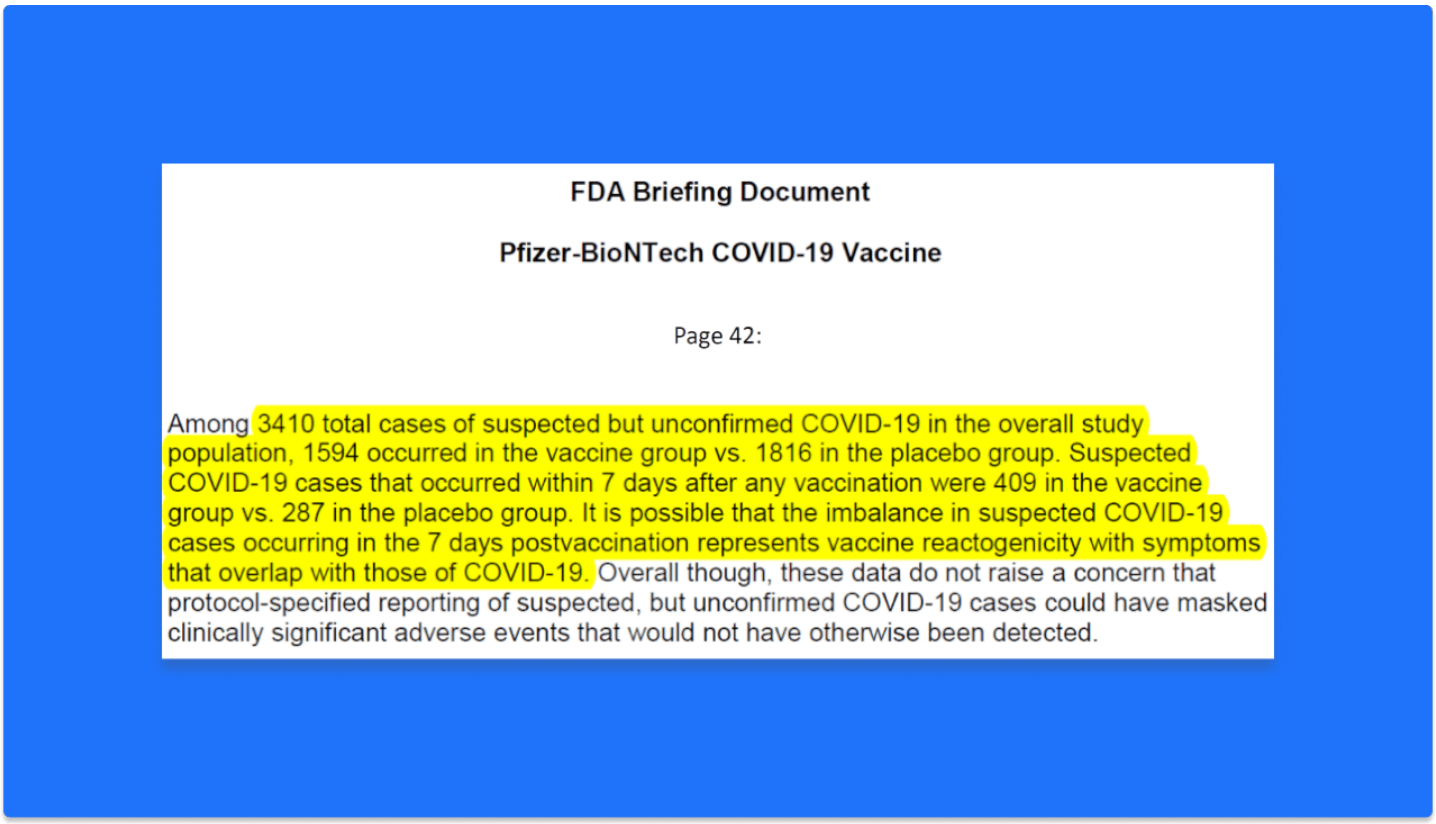
But their new estimate taking into account that these unconfirmed cases actually predicts that the effectiveness could be as low as 19 to 29%, which is a remarkable difference.

But again, I want to highlight this can neither be confirmed or refuted until raw data are released to the scientific community. However, I was intrigued by this because this, this letter was published in mid January and the FDA held their meeting December 10th in 2020.

BYRAM BRIDLE → 00:31:04

And I was asked leading up to that, I was provided with a copy of this document, this briefing document that the FDA used, and I've pulled out an excerpt here, which you might be interested in. So this is from the FDA briefing document. This is a paragraph found in page 42. And I was asked by members of the media, if I could go through this document and highlight if I had any concerns.

And I highlighted the areas where I concern. And interestingly, as you can see here, I highlighted exactly what this associate editor of the British Medical Journal highlighted as well, which is indeed there were 3,410 total cases of suspected, but unconfirmed people with COVID-19, right, in the study.



And if you look here, this is why the editor and I, you know, prior to that were concerned.

The different, the number that occurred in each of the groups, the vaccinated versus unvaccinated group is much closer than what they got with the 170 people that had confirmed cases of COVID-19.

BYRAM BRIDLE → 00:32:05

And that's where that calculation came in from the associate editor that the efficacy might actually be much lower.

I also want to point out this vaccine hasn't been approved yet, but out of China, there's a company Sinovac Biotech. And again, what happened is there were clinical trials being run in Brazil and early on, these researchers reported pretty impressive effectiveness again, 78% effectiveness.

But what was remarkable is the same researchers much more recently updated this data to indicate that the effectiveness was only 50.3%.

And it turned out that they were being, I guess, you know, encouraged because of legal documents that they had signed confidentiality, you know, agreements and everything, they were unable to release data with the earlier prediction of effectiveness. They did not include, again, a number of people who actually had COVID-19 but the cases were deemed mild to moderate.

BYRAM BRIDLE → 00:33:09

Okay. And then when they were included that this effectiveness dropped to this just over 50%. So I want to point out that the World Health Organization like most regulatory agencies around the world agreed upfront that they would approve vaccines if they were 50% effective.

So the whole point is here, I'm not saying who's right, and who's wrong. Right. I just want to look at the facts. All I know is that if, if right, that's the big thing here, if the efficacy of any of these vaccines is less than advertised, then obviously they're going to underperform relative to our expectations. So that's just fact.

Now, this is a very important one, and this is one that people actually get quite passionate about. I really don't understand what's going on here. Why is it even an issue, but people have asked me, you know, what are the risks of using COVID-19 vaccine in ways for which they were not approved?

BYRAM BRIDLE → 00:34:08

So again, the way a vaccine works is researchers have to agree upfront with a protocol for using their vaccine. This is agreed upon with the regulatory agencies.

And this makes sure there can be no biases in the study after the fact. So you, you design your strategy and then you run the strategy and the clinical trial.

And if all goes well, that strategy that you've tested gets approved and traditionally no change in that strategy should occur. Unless you repeat a phase three clinical study with those revisions made with the alterations made to that protocol.

If you run a phase three clinical trial with a different version of the protocol, and it proves to be safe and effective, it will be approved. Then you'll have more than one protocol that came to be approved.

BYRAM BRIDLE → 00:35:04

However, we only have one protocol out there that's been approved for the Pfizer and Moderna vaccines, and also some are now using the Oxford vaccine.

But yet people are looking at changing these from the approved two dose regimens to single dose regimens. They're also looking at combining the vaccines from different manufacturers.

They're also looking at altering the intervals between these, and I understand this because it's proving to be very difficult to roll out these two dose vaccine regimens.

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>
> “their new estimate taking into account that these unconfirmed cases actually predicts that the effectiveness could be as low as 19 to 29%”
>
> **DR BYRAM BRIDLE**
> Professor of Viral Immunology

There’s a lot of logistical issues. So that’s why people are looking at this. All right.

However, I can’t emphasize this enough, and you don’t just have to believe me. If you go to the well-respected United States Food and Drug Administration, they absolutely are telling everybody with absolute certainty do not change the approved protocol. Okay. Because the reported effectiveness of these vaccines only holds true, right.

BYRAM BRIDLE → 00:36:02

Beginning one to two weeks after the second immunization, right? That effectiveness data that I was just talking about, that’s based on once your immune response is peaked, which depending on which vaccine you’re getting is one to two weeks after that dose. That’s when you can expect that performance.

And that’s only going to hold true if you have used the recommended interval and dose, okay. Performance and safety of these vaccines cannot obviously cannot be guaranteed if administered in any way different from the way in which they obtain regulatory approval. I can’t emphasize this enough.

If something goes wrong with these vaccines, if they don’t perform as well as expected, if there’s some kind of a safety issue, think about it. The manufacturer is not gonna take responsibility. The health regulatory agencies, aren’t gonna take responsibility. They’ve told us how they should be used.

BYRAM BRIDLE → 00:36:56

And if we don’t use them that way, we’re gonna be the ones responsible for the outcome. And I just want to give you an example.

So in Israel, they decided to go with a single dose regimen, which was interesting because the reported effectiveness for the Pfizer vaccine was publicized at 52%. So they thought, okay, this is, this is over what we had agreed on more than 50% effectiveness. So we’ll just do a single dose. We get twice as many people vaccinated.

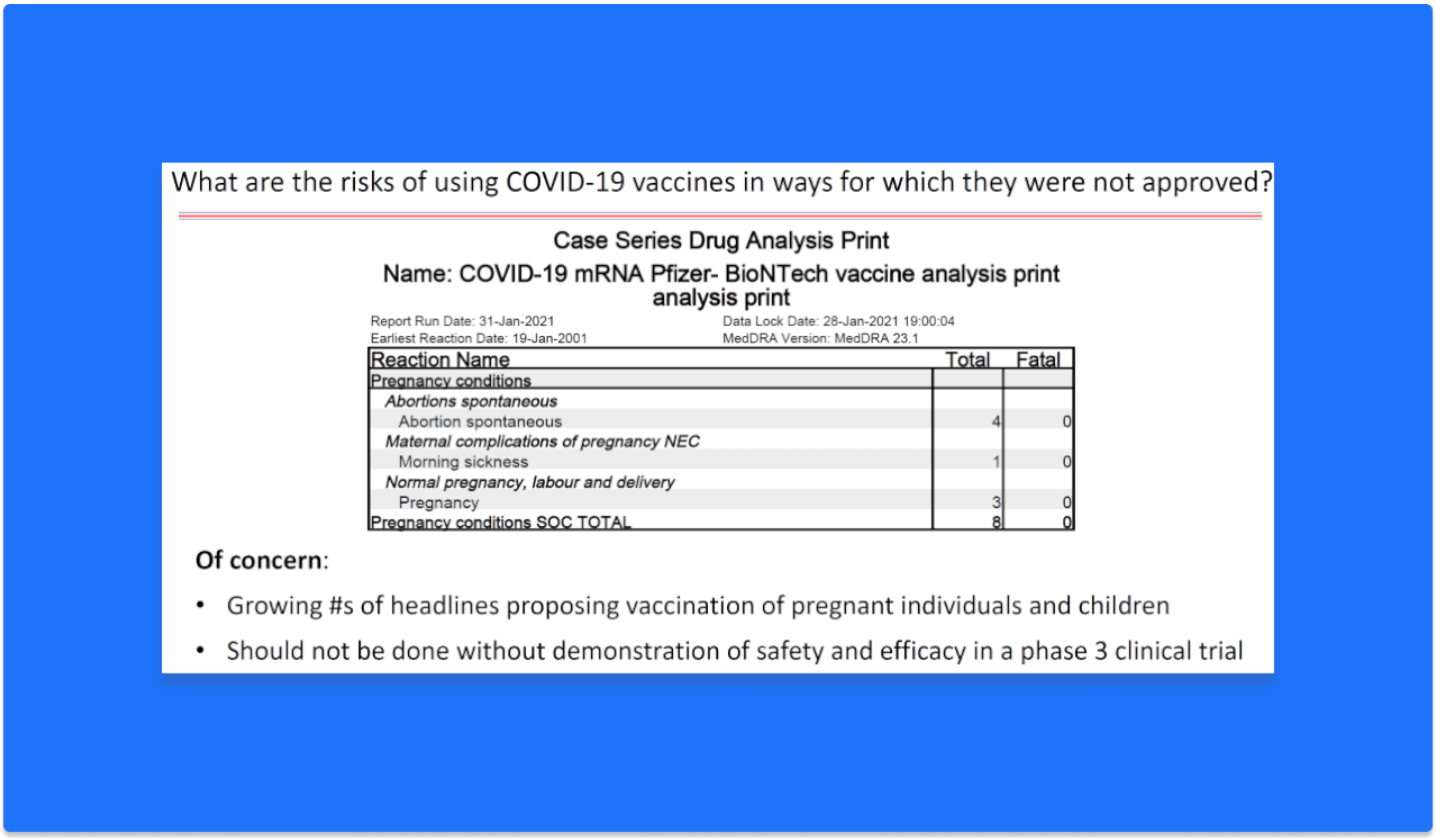
If you haven’t seen the headlines, they have been quite unimpressed with the effectiveness. They argue that it is underperformed relative to this to this percentage here. But again, this vaccine was not, it was tested as a two dose regimen. There’s very limited data between those two intervals that that suggested that it might be 52% effective.

BYRAM BRIDLE → 00:37:47

Again, it wasn’t recommended to be used as a single dose regimen. So it’s not surprising.

And I can’t emphasize this enough, deviations in the protocols for using these vaccines should not be tolerated. All right, unless backed up by phase three clinical data.

But if you’re to receive a vaccine as an individual, I would insist on having it administered as it was approved.



Now, this is interesting. One of the, presumably one of the attendees today. So they were the people who intended to attend this sent this information to me and asked if I could comment on it. And I found this was, I was actually very surprised when they sent this.

So what this is, this is this taken from a report from the United kingdom's regulatory agency, health regulatory agency. And it's just reporting potential side effects that have been associated with the vaccines, right?

BYRAM BRIDLE → 00:38:42

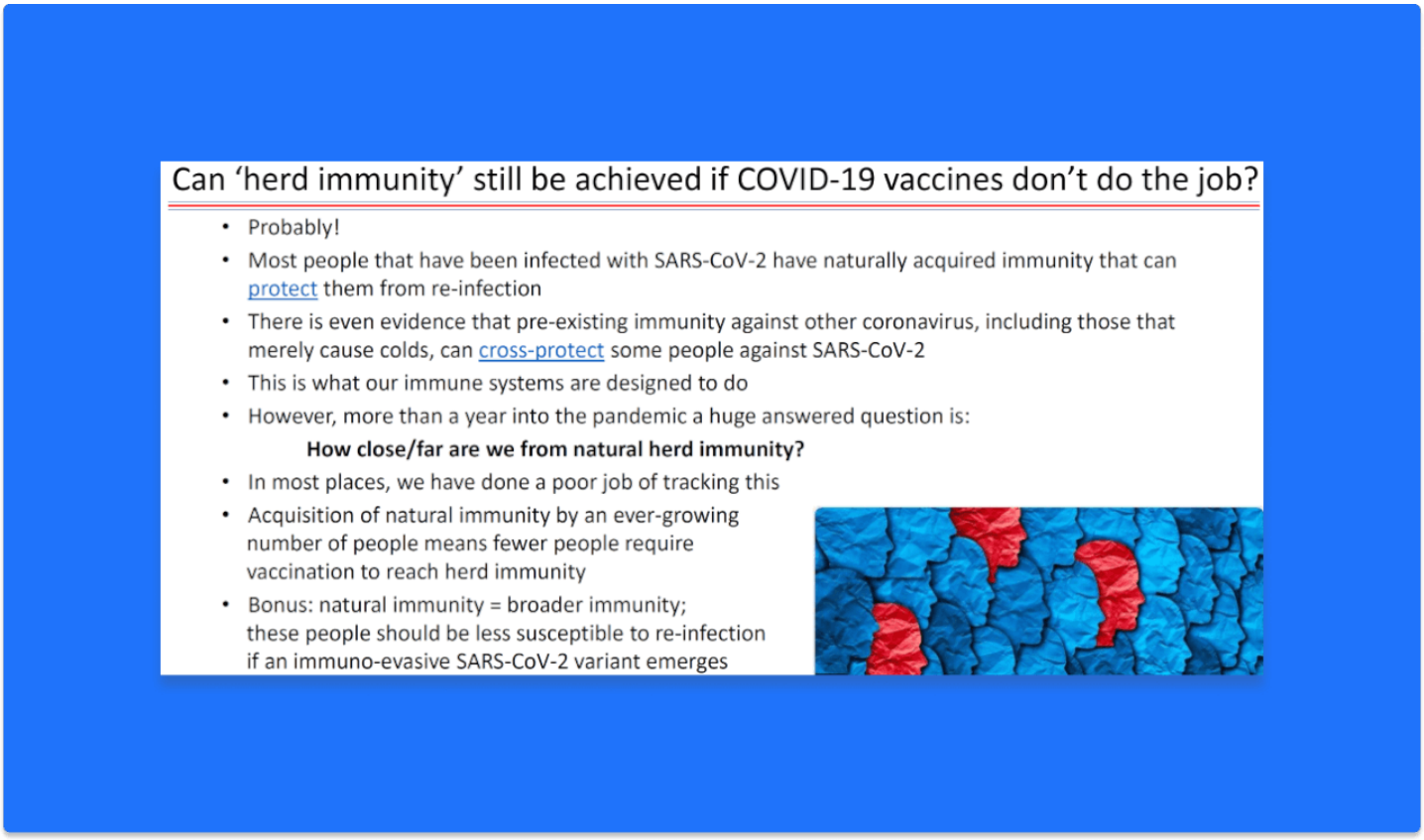
They're not saying there's a cause and effect relationship or anything. Just things that have been associated with. They're summarizing the data. But what I was very surprised to see as this individual was who sent this data, is that there's these pregnant individuals that have been vaccinated. Now, it's very well possible that it wasn't known that these people were pregnant at the time that they were vaccinated. Right.

But what I want to point out here, which I am personally concerned about is as a scientist, I know it's only four people. Okay. Only four out of a total of eight people that have been confirmed in the UK to have been vaccinated and to have been pregnant. So it's low numbers, right. But four of these individuals experience spontaneous abortions. Okay. So again, we're not supposed to be using these vaccines in individuals who are pregnant.

BYRAM BRIDLE → 00:39:36

It hasn't been tested for use in that indication. And when I see these numbers, if I were a pregnant female, I wouldn't like the perception of, you know, half of these people who were, who received the vaccine, having a spontaneous abortion. Again, whether, whether it was... Again, life went on after this vaccination, it could have been due to any other number of events in their lives.

The point being, there are a growing number of headlines that I'm concerned about, which is proposing vaccination of pregnant individuals and/or children. The vaccines have not been approved for this. So this absolutely should not be done without a demonstration of safety and efficacy in a phase three clinical trial.



Now, some potential things that could be sticking points for these vaccines. What I want to do now is highlight some things very important here.

BYRAM BRIDLE → 00:40:34

And actually what I'm gonna, because I actually want to do this in a different order.

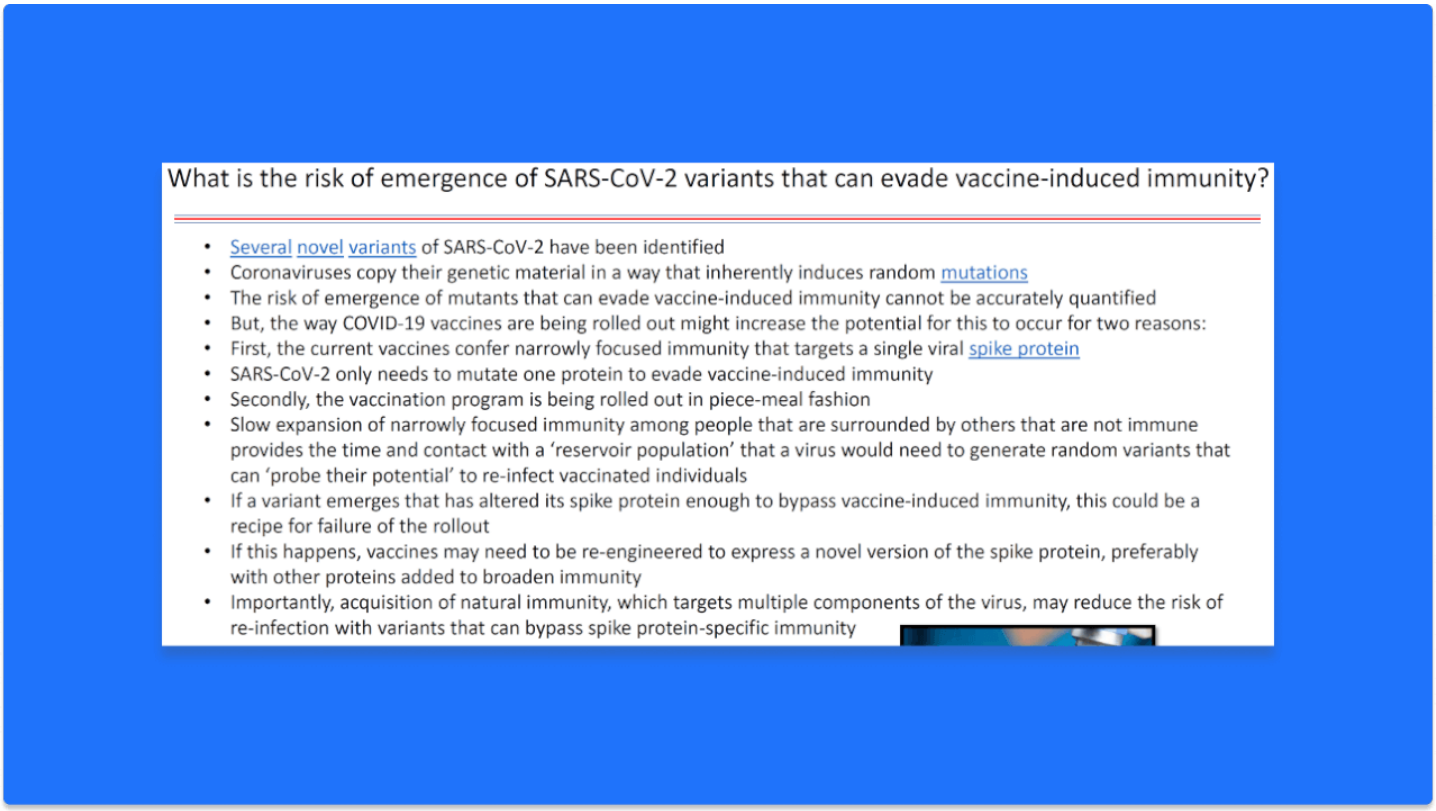
One final thing. I am very concerned about the emergence of SARS coronavirus two variants. Very concerned about this in the context of the vaccines.

Several of these have been identified. It started out actually with variants coming out of mink. Many of you may have heard of that, right. Farm mink were getting infected by people with the SARS coronavirus two. And then the mink were reinfecting people. And some of these mink, the version of the virus that was coming out of the mink was different than the parental virus.

So a new variant, and you've probably heard, you know, now we've identified several others, including the United Kingdom variant, the South African variant. Okay. And this is to be expected. This is not unusual. We know the coronaviruses do this. Just so that you understand a little bit of the virology here, coronaviruses are designed to copy their genetic material in a way that inherently induces random mutations.

BYRAM BRIDLE → 00:41:40

All right, they're constantly having these random mutations occurring. This is a way for this virus to potentially adapt to new micro environments that it finds itself in.



To improve its fitness. If it finds itself in an environment in which it has lost fitness. Now this, because this is random, our ability to engage the risk of emergence of mutants that can evade vaccine induced immunity cannot not be accurately quantified. But, and I'm actually gonna summarize all this that I have here in a bit of a different way. Let me put it in this perspective for you.

I'm a researcher. I focused my career on developing ways to maximize the probability of an outcome occurring. Usually I'm trying to maximize the potential for a vaccine to treat cancers or prevent infectious diseases.

But if you were to ask me as a scientist, how would I design an experiment that would maximize our chance of generating a highly immuno evasive variant of the SARS coronavirus two?

My answer would be essentially the exact way we're rolling out these vaccines, precisely the way they're rolling out these vaccines.

And I just want to highlight this. So what do I mean by that, as a scientist, there's kind of three key things that I would want in my experimental design if I wanted to maximize the chance of generating a variant that can evade all of our current COVID-19 vaccines.

First of all, I would want the vaccine to be rolled out very slowly. Secondly, I would want that vaccine to be distributed in a piecemeal fashion. So just vaccinating a few people over here and a few people over there, disperse through the populations.

And again, making sure this is done very slowly. So we have a slow and gradual increase and the geographical coverage of the ever-growing immunity against SARS coronavirus two.

BYRAM BRIDLE → 00:43:47

All the while these people that have been vaccinated are surrounded by people who are not immune. And therefore conserve is what we call a reservoir population. This means this is the population in which the virus can spread.

All the time, the virus is going to be randomly generating these mutations. And that virus then is these people come into relatively close contact with the vaccinated individuals.

These random mutants can probe their potential to infect these vaccinated individuals.

And if they haven't randomly acquired a mutation, it allows them to, infect that individual, then there's going to be no infection, but they're still going to circulate in that population of non-immune people. And it's probably just a matter of time before there is a random mutation that does allow them to infect those individuals. And those viruses will be very problematic because they will have evaded the vaccine induced immunity.

BYRAM BRIDLE → 00:44:41

Now, the third thing that I would do to ensure that that this could be maximized, this opportunity for the virus, a problematic variant to emerge, is I would make sure that the vaccine that I was using was conferring very narrowly focused immunity.

A previous speaker actually talked about this, right? When we naturally get infected, our immune system will respond to multiple components of the virus. But honestly, and you know I'm involved with the SARS coronavirus two vaccine development.

We have been short-sighted generally speaking as the scientific community. We knew these viruses from the get-go could mutate, but we decided to focus primarily on the spike protein, a single component.

Now, the reason why is, again, as I said, the spike protein is what allows the virus to get into our cells.

So the idea is if you could generate antibodies against the spike protein, and then it can't bind to our cells and we can't get infected.

But if we're targeting, if you think about it, it's much easier for a virus to fundamentally alter one protein in its structure. It's going to be far more difficult for that virus to alter multiple components of its structure and maintain fitness.

And so that's the other thing. So we're talking narrowly focused immunity. So we are only asking this virus to change one protein in order to be able to evade these vaccines.

So I've heard it said that maybe places like New Zealand, I don't want to be the bearer of bad news here. I just want people to be aware of the possibility and maybe I'm wrong and hopefully I'm wrong. But knowing the virus, knowing these vaccines, knowing these two areas of science, I am quite confident that it's just a matter of time before we will have a number of variants that can readily bypass this narrowly focused immunity that these vaccines confer.

BYRAM BRIDLE → 00:46:43

So if that's true, then a country like New Zealand, which has isolated itself and may not have substantial, naturally acquired immunity, which is gonna be very broad and is relying on these vaccines, may be able to vaccinate their population.

But if the rest of the world has these variants circulating, all those vaccinated individuals are gonna be susceptible to these variants that don't care about that spike protein specific immunity anymore.

And and you may, as a population, have wanted much more broad immunity that's conferred by natural natural acquisition of immunity, meaning you acquire the infection and clear it. So I'm very concerned about this.

And you might say, you know, is this, you know, am I completely wrong? No, we have evidence of this already. For those of you who don't know, a very scary report came out of South Africa just this month, Monday of this week. Tuesday, I guess, in New Zealand time.

BYRAM BRIDLE → 00:47:43

But the point is a phase three clinical trial was conducted in South Africa using the Oxford vaccine, which had been approved for use in the United Kingdom. And they did not approve, you didn't hear this, they did not approve the vaccine because it failed to provide proper protection against the South African variant. So we already have an example of a variant that's widely circulating around the globe that can evade the Oxford vaccines conferred immunity.

And so, arguably, it's just a matter of time before we will have variants that can bypass this narrow immunity conferred by all of these vaccines. I hope I'm wrong, but I really don't think that I am.

Now, just before I get to your questions, this is very important because I don't want this to be potentially just all bad news.

So the other question then is can herd immunity still be achieved if any of these problems do result in failure of the vaccine rollout?

BYRAM BRIDLE → 00:48:38

And my answer to that is probably, and again, you've been hearing about this from the other speakers, right? And this is because most people that have been infected with SARS-CoV-2 have indeed acquired natural immunity. And we know now there's lots of published reports that this is protective.

It can protect them from reinfection, not always, but it can. One thing I want to point out, I noticed there was a question people are wondering, can some of these new variants, infect, people who were vaccinated, a logical run onto that would be, if you were infected with the parental virus, the originals variant of the SARS-CoV-2, and cleared that infection, and are now immune to it, could you be reinfected with one of these variants? Yes. It very well likely you could, but natural immunity is very broad.

So if a new variant infects, chances are that the immunity you have is going to blunt that infection, where is if you have that narrowly focused immunity conferred by the vaccine, and this variant has evaded that spike protein specific immunity, those people are going to be at much greater risk of more severe disease than those who acquire the new variant, but have this broad acting natural immunity.

And there's even evidence, interestingly, that those with preexisting immunity against other coronaviruses, including the SARS coronavirus one from 17 years ago, and even from some of the cold causing coronaviruses, can cross protect some people.

So this is the sweet evidence that natural immunity can be pretty good. I actually kind of laugh when I see these publications coming out, because this is kind of immunology 101 that I teach all my students. This is what our immune systems are designed to do.

That's why we have them. So the fact is this really isn't new science. Okay. But this is the problem, and this is what I would highlight for those in New Zealand.

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> Professor of Viral Immunology

We're now more than a year into the pandemic. Most countries at the beginning of pandemic decided they're not going to go for rapid acquisition of natural immunity. Instead we are going to slow it down or try and prevent it altogether and wait for the vaccines to accomplish this.

But for example, the country I'm in, in Canada, we're in lockdown right now, but we had our students go back to school for quite some time, actually, just now they're there. They've just gone back again after a second lockdown. We've had a lot of people go back to work.

BYRAM BRIDLE → 00:51:01
The reality is we've probably acquired quite a lot of natural herd immunity. We're probably much closer to herd immunity than we even appreciate. And certainly much closer than we were, which was zero.

We had zero natural immunity essentially at the beginning of the pandemic. But if you have gone with an isolationist policy, strict isolationist policy, you might have low levels of natural herd immunity. And indeed also we've done a very poor job of tracking that. So we really don't know how close or how far in most countries we are from natural herd immunity.

But you've also been hearing the other speakers talking about that. This probably, you know, we probably should have adopted more of this earlier on, and then we'd be in a much better place should some of these dangerous variants come out. Okay.

So again, I can't emphasize this more either, acquisition of natural immunity by an ever-growing number of people happily means that fewer people will require vaccination to reach herd immunity.

BYRAM BRIDLE → 00:51:59
It's crazy in Canada, we're not bothering to test people for preexisting immunity before vaccinating them. We don't have nearly enough doses. It's gonna take months and months to get everybody vaccinated.

And our leaders have told us that it's too difficult. It's too time consuming to test for pre-existing immunity. That's not true. Because if somebody, the point is, if somebody is already immune, then the limited doses that we have to go around could be used to protect those who have no evidence of immunity, right.

Then we're gonna achieve herd immunity faster. All right. And again, like I said this ties in natural immunity equals broader immunity, and these people should be less susceptible to reinfection if any, immuno of SARS-CoV-2 variants emerge.

So I'm going to stop there and will be happy to answer any questions.

HOST → 00:52:47

Thanks, Byram, wonderful presentation. To be honest, I'm slightly lost for words in terms of the problems that we headed into and disappointed that these vaccines aren't quite as they appeared to be. So we've got some questions that have come up. There's a lot, as you might imagine. I think you did deal with a lot of them in your presentation. Thank you.

And I want to reiterate where you started from, which was we're totally in support of vaccines in principle and certainly wished and wished for a vaccine or vaccines that will work for SARS-CoV-2.

Do you think there will be more efficient vaccines or more effective vaccines down the line? I mean, other people are working on them. Will more come? Single dose ones, you know, and just more effective.

BYRAM BRIDLE → 00:53:43

Yes, absolutely. There's no question that we are going to have. So again, like I said, so we now have the evidence with what I just talked about with the Oxford vaccine, where we have already the South African variant that can evade that.

I honestly believe it's just a matter of time before a variant will emerge, that can bypass the immunity conferred by the Moderna and Pfizer vaccines and others that we may come up with because they're too narrowly focused.

So if that happens, there's two potential solutions. You could simply go back and swap in the new spike protein from the new variant, but that's not going to solve the long-term problem. Because then another variant will emerge. That will probably evade that one.

So to me, a better solution is we should have done this from the get-go, because again, we knew about this viral biology, right?

So arguably we should have been incorporating multiple targets into the vaccines, because again, it's very difficult for a virus to make substantial changes to multiple proteins and still maintain its fitness.

So those are the vaccines that I think in the future are going to be most effective, but, you know, we've come so far down the road. I mean, to do those now means going and putting those through all the clinical trial phase again.

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So I think that's really, unfortunately, probably going to be more of a solution for well in the future. I totally agree with the other speakers. We're going to have to live. And I've been preaching this for a long time, right. We should have a long time ago have been learning how to live with this virus. There's no question in my mind, and we're seeing these variants.

BYRAM BRIDLE → 00:55:29

So what this is, this is very much like influenza viruses, where we see the exact same thing. That's why we need to get a flu vaccine every year, because every year new variants emerge. That's another virus that readily mutates. So this coronavirus is almost certainly going to become like the annual influenza virus.

We're going to see variants continually emerge in the future, and we're going to continually have to tweak our vaccines to deal with them. That's how I see it.

And then in the meantime, we want to try and develop vaccines that can prevent us from having to do this on an annual basis, right. With a do target large components. We would refer to these, in the context and influenza vaccines, we refer to them that the ultimate goal is to develop what we call a universal influenza vaccine.

BYRAM BRIDLE → 00:56:18

So we get one vaccine and we're going to be protected from most of the variants that are going to emerge in the future. So that's one thing.

And then again, the other one that people really have been really hesitant to talk about, but now we have the data, right, is again, we know that the vast majority of people are not susceptible to severe, certainly lethal COVID-19. So the other approach is naturally acquired immunity. I do think that most people could, and had we had to hop to this strategy, most countries could probably be very close to herd immunity right now.

Having naturally acquired it without a whole lot of deaths and severe illness, because most people are not susceptible.

So most of the people at working age could have been back at work.

BYRAM BRIDLE → 00:57:05

Most of our kids could have been back in school in face-to-face learning. Acquiring this natural immunity, there's probably a fair bit of it in those who have gone back to school.

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We know what the relatively few people are that need a lot of protection. For example, in Canada, we're spending a billion dollars a day, our federal government, on COVID-19, their COVID-19 policies. If we had most people back, we wouldn't be destroying our economy. We'd have incredible resources that we could direct into protecting the people that need it. And arguably we would be able to achieve natural herd immunity through all the relatively, you know, the people that have low risk from SARS-CoV-2.

And if they achieve herd immunity, the highly susceptible people will be protected.

HOST → 00:57:55

Hmm. I wonder if you could touch quicklyon effectiveness. And that is to say, I was surprised. I had seen the BMJ analysis. But I'd been surprised that edit being so low across the board. Are all vaccines going to be like that? Do we think later ones could be better, could be more effective? And second part of that question, what does effectiveness to you mean – stopping you dying, or effective, just, you know, you'll be less ill?

BYRAM BRIDLE → 00:58:26

You raised a great questions. So, in terms of effectiveness, I certainly don't want to claim that anybody's misleading with any of the data.

All I'm trying to point out with that is that if you take into account that large data set that was excluded, you end up with very different numbers than the very impressive numbers that we saw.

And again, we can't rule it. We can't prove that one is correct, and one is wrong until we see the raw data. But again, there's the perception that what the question that it raises is we've been seeing vaccines that have been showing lower effectiveness, right?

And the issue is if those people, if those vaccines are actually properly reporting and properly incorporating all of the appropriate data into their analysis, then they actually might be more effective than the vaccines that have been shown, you know, claim to be more effective in the media releases.

BYRAM BRIDLE → 00:59:21

This is the problem. This is the problem when we don't have completed phase three trials and all of that data going through the peer review, we just can't comment.

But could we make vaccines? Yes. Any vaccine platform can be improved and be made more effective for sure. Now your second question is a very, very important one again, because these vaccines came out so quickly, we have not had the opportunity to properly evaluate how protective they are.

I would argue a good vaccine for an infectious disease is one that prevents infection. The ultimate goal is what we call sterilizing immunity. Your immune response against the vaccine is so good that the pathogen can not infect the individual, right? SARS coronavirus two cannot affect the individual. It can not replicate in that person. And therefore that person cannot pass the virus on to others.

BYRAM BRIDLE → 01:00:09

However chances are that these vaccines are not conferring sterilizing immunity. And in fact, if you recall that 50% effectiveness, that was not 50% of people having sterilizing immunity, that could be 50% of people where that vaccine prevented them from dying, right. Or reduce the disease severity in those individuals.

So, yes, with these vaccines, it's still very well possible that people will get sick. Maybe the disease will be blunted. And in that case, they are being infected. The virus is replicating and they can spread this virus on.

That's why ironically, you know, as we roll out these vaccines, we can't change our current COVID-19 policies. So here in Canada even when vaccinated, once vaccinated, we still have to... It's like life before being vaccinated, we still have to wear the mask. We still have to do the two meter distancing, et cetera, right?

Because there is no assurance that these vaccinated individuals aren't spreading the virus.

HOST → 01:01:13

So that seems like a big problem that perhaps we hadn't quite expected. Certainly here in New Zealand, I hadn't expected with the vaccine that we're waiting for. We thought you had the vaccine was all over.

But you know, it's appearing that they're not stopping transmission, there's certainly not stopping this Siri or they may be stopping death, but there's still, there's still, they're still not preventing symptoms so that all those other things are still necessary.

It feels as if we set ourselves up for a narrative in which a situation in which we can actually escape either vaccines or herd immunity, how the heck is that kind of change?

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BYRAM BRIDLE → 01:01:52

Yeah. And unfortunately, I honestly, I was, I was hesitant to present some of this stuff, but again, I just feel, I have to be open about, I can tell you if somebody who lives in Canada, maybe we have been so frustrated by how long we have been dealing with, with the government imposed, you know, lockdowns, and various COVID-19 policies.

But what's that said, I do have to say, you know, we've, we, we have many people did have the opportunity to go back to work in between lockdowns. We're heading back toward, we've been a second lockdown. We're heading back towards that.

We had our kids in school for quite some time. For four months. In fact, from September to December, we were in this lockdown. Our kids went back again this week.

And so I guess the point being that it's been long and protracted, but because we have had some attempts to get back to something that resembles some sort of normalcy again, I have, I'm optimistic that countries like ours and especially countries that have not had the strict lockdowns.

BYRAM BRIDLE → 01:02:52

Like, again, you look at Sweden for example, right? I'm very optimistic that these countries are much closer to naturally acquired herd immunity than we appreciate. That wasn't our goal, right? Our goal was to wait for the vaccines, but it's been happening anyways because let's not fool ourselves.

The other thing you have to remember that we talk about these masks, right? And so if you look at the kids sitting in school, yeah. They're wearing masks. They're two meters apart.

The virus doesn't respect these masks very well. Okay. Yes. It can reduce transmission through large droplets. We have to understand this virus can transmit fairly efficiently on what we call these microdroplets. And for them the pore sizes in these masks that we wear, like this one that I wear all the time. I mean, it's like a barn door for the nano droplets and the virus particles.

And they can travel 30 meters. So that's why, even though we've been implementing these things, those countries still have had this virus spreading in those environments.

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When our kids are in school, the virus can spread through those, that population. That's just fact, okay.

If you really want to be protected, I recommend everybody go and do a quick Google search on what is the personal protective equipment, PPE, for a containment level three, or in some countries, they call it biological safety level three pathogen, which is what SARS coronavirus two is. You'll be amazed. That is what you need to be wearing if you really want to be protected from the virus.

It looks nothing like the way we look during our lockdown policies right now [laughter]. So let's be clear on that.

So, unfortunately, yes, I have serious concerns for places like New Zealand, because I fear that you do not have much natural herd immunity.

BYRAM BRIDLE → 01:04:31
So just as an example, we have a researcher in British Columbia here in Canada, where, which we feel was probably ground zero in Canada for this outbreak and their data that they have now suggests that at that province that we might have as high as 50% of people naturally immune to the virus now among adults.

And again, it should be higher among children. That's remarkable, right. If we've been told that we might only need 60% of herd immunity, so we might already have a province in Canada, that's very close naturally.

So I fear that New Zealand, you probably aren't. And again, so obviously, you know, you're going to be very hopeful that vaccines work, but for example, I would suggest that you don't have your government started administering to everybody, the Oxford vaccine, for example, because your country's dreaming, if you think you're going to be able to keep the South African variant out long-term.

Unless you never want to open your borders again.

BYRAM BRIDLE → 01:05:22
Right. And again, like I said, so that's already an example and I just feel like fear the other ones, you know? Yeah. They may be okay now, but I really feel knowing this virus that, and again, the way we're rolling this out, as I said, we are optimizing the chance for a variant to emerge that can bypass all of these vaccines.

And so if it were me and remember some of these variants might actually, we're worried about the rate of which they spread. Now, there's not too much concerned about them causing more severe disease, but there is the opportunity a variant could emerge that is more dangerous.

So personally, if I don't have it already, I would probably because I'm in the low risk demographic, I would probably prefer to have natural immunity, honestly. And not that narrowly focused immunity, just so that even if I do get infected with a novel variant, that's almost certainly going to be blunted because I don't want to be at risk of having an immuno evasive and more dangerous, like more potently disease causing version.

I don't want to be exposed to that while I have no immunity whatsoever or the improperly narrowly focused immunity.

HOST → 01:06:28

Wow. Okay. So if if I get that right, so if New Zealand is focused on is only distributing one vaccine we're at risk. If you go overseas, if you travel overseas or the moment we open up the border, we've got problems, exaggerated problems. We would have to either many vaccines or alternatively, just, you know, some gradual gain of natural immunity.

BYRAM BRIDLE → 01:06:53

Potentially, arguably with the Pfizer and Moderna vaccine. I mean, you'd be as protected as anybody else who's receiving those vaccines in the world, certainly with the Oxford vaccine. Yeah. You don't, you wouldn't want to be exposed to the South African variant. Right. Essentially.

But yeah, so at this point in time, this moment, this is the thing, but we can't be shortsighted at this moment. Yes. The Moderna and Pfizer vaccines should, in theory, confer protective immunity against the variants that are out there now. But again, I'm worried about that again that's short-term thinking, because it's almost certainly just a matter of time before a variant will emerge, that will bypass the immunity conferred by those vaccines as well.

HOST → 01:07:37

So a final final thing for you. You say that you wouldn't take any of these vaccines at the moment. You'd rather have a naturally gained. Is there anybody who should be taking a vaccine?

BYRAM BRIDLE → 01:07:51

I want to make it very clear that people have to do their own cost benefit analysis. Right. And again, I can't highlight enough that I'm in a low risk demographic. My family's in a lower risk demographic, certainly my children are, right.

And there's certain reasons there's reasons that I couldn't get into as well. So one of the, there's a couple of concepts that are interesting. It comes to, we know about this through the influenza vaccines, right. That we get each year. And one is called an original antigenic sin. And so it's, if you focus your immune response on, like, we are here on a single protein that can actually influence our ability to respond to that protein from different variants in the future in a way that's suboptimal.

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>
> "The virus doesn't respect these masks very well... it's like a barn door for the nano droplets and the virus particles. And they can travel 30 meters."
>
> **DR BYRAM BRIDLE**
> Professor of Viral Immunology

And the second thing that a vaccine can potentially do is reprogram our, what we call our innate immune response.

BYRAM BRIDLE → 01:08:47

So that's not what we're typically targeting with the vaccine, but it's the first part. Our innate immune system is the one that tells our acquired immune system how to produce the antibodies and the other cells that are needed for the protection. And we can actually imprint on that part of our immune system, a bias that can potentially be a suboptimal for the future.

So again, since I'm not a particularly high risk, if I don't have it already, I would probably prefer at this point to have the naturally acquired means. And it just because I know it's going to be broad, I know that my immune system will have naturally induced the, you know, the appropriate bias.

It'll be programmed properly to respond optimally to future variants and future, you know, completely different versions of the coronavirus that might emerge in the future as well.

BYRAM BRIDLE → 01:09:35

So, yeah, I'm there, but people have to evaluate this, but again, you know, when you see some of these other issues like perhaps with the elderly, you know, some questions coming up. Everybody has to evaluate the cost benefit analysis, but again, I would argue that these people, you know, had we done this right?

We could have already had in many countries have achieved herd immunity naturally, and therefore have saved many lives and the highly susceptible demographics, because again, there's, we know, again, you know, over 99% of us are not in particularly high risk of the severe disease and death. That's more than enough people that we need to achieve herd immunity.

And if we achieved a herd immunity and those people, and, or could get enough of those people vaccinate, but even look how we're rolling it out. We're targeting, we're prioritizing the elderly, for example. They tend to, they have what we call immunosenescence. They tend to not respond optimally to vaccines and so on.

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Yeah. And again, again, like I said, we're vaccinating people who probably already have natural immunity, right. We shouldn't be using these vaccines to target those who are healthy, that are going to respond robustly and quickly get those of us who are relatively low risk up to herd immunity and will protect all of these highly susceptible people.

HOST → 01:10:49

All right, Byram. Thank you very much. We've let that run because it's fascinating and we absolutely needed that input from you. Really, really appreciate you taking the time. You've thought about this marvelously and really appreciate what you've taken us through. Thanks for joining us.

BYRAM BRIDLE → 01:11:09

Yeah, yeah, yeah. Sorry for going over. I really appreciate you having me. I guess would just end with my personal, just personal thoughts. Right. But my prediction in the future is that we're all going to the history books in the future. We'll document this as the greatest mismanaged crisis of our time. Unfortunately.

HOST → 01:11:28

Yes, totally agree. History books, unfortunately somewhat distant in the future from here. Thanks very much Byram. I'd stick around if you do have time, I appreciate you being with us. Carry on answers and questions. There's plenty there. Thanks a lot. Okay, everyone. We've got about 20 minutes before Simon Thornley joins us. So we might just shut down for that 20 minutes. We'll be back with Simon. Thanks very much for a second. Only with us.

More Resources:

- **James Lyons-Weiler — Pathogenic Priming: Coronavirus Vaccine Safety Warning**
- **Public Health Prof. Raj Bhopal – Hopes that his Children Catch SARS-CoV-2**
- **New UK Coronavirus Variant Isn't Even Worth a News Headline — Prof. Vincent Racaniello**

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