



## Transcript of the Covid Action Group Podcast – Episode 1

### Community Elimination of Covid-19 and the Green Zone Exit Strategy - A Working Example

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#### INTRODUCTION

*Today in a Covid Action Group interview, we speak with Professor Matthias Schneider - a medical and biological physicist at the Technical University of Dortmund in Germany - about what it takes to end the pandemic, the Green Zone exit strategy - currently in practice on his campus - and how colleges and universities can work together with health authorities and surrounding communities using Green Zones to swiftly curb transmission of Covid-19.*

*Welcome, Professor Schneider. It's great to have you here. Could you please begin by telling us what brought you to co-create the No-Covid Initiative? And also describe the concepts behind the Green Zone Strategy?*

Yeah. The No Covid initiative was an interdisciplinary group that formed because we realized quickly that this is not just a problem of physicists, biologists and medical doctors. So, we also include economists, political scientists, sociologists and lawyers and so on.

And we quickly noticed that coexisting with the virus is not working. You just need to open your eyes and see which countries have been successful in fighting the pandemic and which haven't been successful. You look to Asia, you look to the many Western countries, and it's quite easy to see that coexisting doesn't work.

You may have to live with the virus in some sense that it will show up on occasion. But the goal will always be to get rid of it as quickly as possible. But how do you do that?

You have to act fast. With no regrets, and locally differentiated. So, you have to get rid [of the virus] where the fire starts immediately. You have to get on to it. It makes no sense to always apply the hammer to the entire country.

You have to act locally, and once the area is free of the virus, of course, step number two sets in, which is a program to keep the area virus free. It means you have to protect the area, so you don't need further lockdowns.

And these are the two basic steps of the Green Zone model. And from there, you can go into details, but that's basically what it is. You get the numbers down and then you keep them down.

*I see. So, a Green Zone is a localized area with clearly defined boundaries, where Covid is eliminated, and there is no community transmission. Is that correct?*

That's correct.

*OK. Green zones, though, are only one part of the No-Covid in Germany or in the United States, the Zero Covid approach. What's needed to protect Green Zones once they're established?*

The key to keep a Green Zone green is first to motivate all red zones to get green as well, because the more Green Zone you have, the easier it is to keep a Green Zone green. The second part is that you have a very good or a good test, tracing and isolation structure in place.

Without testing, you move on blindly. Testing means opening your eyes and seeing what's going on, where the virus is, how the virus moves, and so on. Without testing you don't know that. And if you don't know that, you can't respond locally. You can't act. You can't act if you don't know what's going on. If a positive case, for instance, is identified, you have to start not only the isolation, but also the tracing immediately, especially the retrograde tracing that sometimes has been forgotten, which means, when you look at the physics of the spreading, you know, many people have heard this now several times, that about 10 percent or a very small amount make 80 to 90 percent of the infections. This means, in order to identify such a super spreader, if you have a positive case, you need to jump on it and try to find the source as quickly as you can.

But the test, tracing, isolation process has to be combined with an arsenal of processes which help to limit exposure. Testing is just opening your eyes and seeing what's going on. You also need to somehow be active about this. So first of foremost, of course, you should wear masks if possible, N-95 or even better.

You need air filtration systems in schools and universities or wherever you have many people in closed rooms. And of course, you need to try to have small groups, cohort formation - don't fill up the classrooms with 25, 30 students, but make groups of ten or so.

And yes, of course, you should wear a mask even if you are vaccinated until the risk for you and others is down. I think the CDC understood that now as well.

*You've explained the theory, but as I understand, you are actively working on putting this concept into practice at your university in Dortmund. Can you give us some insights into how Green Zones are implemented on your campus?*

Yeah, that's a very good question, because often when you explain what we are doing at the technical university, it doesn't sound like rocket science. So why wouldn't others do it as well? And it's quite simple and straightforward.

The most important part is probably that you have courage and communication of those who call the shots. So, in our case, the president, Manfred Bayer, simply decided that he will follow the science. He's a physicist like myself.

I explained to him the story and he was excited about it. So, he announced it. 'This is the way we are going to do it.' So, of course, within certain legal boundaries.

You clearly communicate that goal. You establish what kind of actions need to be taken. You ask what the requirements are on the students' side, but you also don't forget what you have to offer as a university. What's the benefit for the students of sitting at home and getting tests every day?

So you're not just demanding, but you're also offering something. This is where the test strategy comes in at the campus. You need to offer easy access to tests and now even easy access to vaccination on campus. At the TU, we have, therefore, three test centers. We built three test centers that spread out all over the campus with six parallel test lines. So, you can get tested whenever you want. We are not just testing undergrads and grad students and scientists, but we also test the staff from the cafeteria, the workshops, as well as external companies that come in for maintenance reasons or security staff. And we even test the president himself. All of them are offered a free test.

The frequency of the tests then depends on how present you are on the campus. So, if you are present more than two days a week, you are tested twice. We test in pools. So, we group 10 people in one pool and then test that one pool. That makes it fairly inexpensive. And once a pool is positive, then you have to find the individual in there, but this doesn't happen all that often, because if you think about it, even if you have a hundred new cases per a hundred thousand a week, which is quite high - we don't have that anywhere in Germany right now this high - you only have one student per thousand a week that tests positive. That means only one out of 100 pools is going to be positive, so you need to resolve only one pool. So, this is actually a quite straightforward way of testing.

*It seems also that for financial and logistic reasons, pooled testing is important. And I just want to make sure everyone who's listening is on the same page. Could you please describe pooled testing in greater detail for those who might not be familiar with the concept?*

Yeah, of course. I mean, all right now there are two types of test principles. There is the antigen test and then there's the PCR test, which is the gold standard. It's much more reliable.

On average - we have a little graphic on our homepage where you see that - if you test twice a week with PCR, the chances that one slips through is like a factor of two less, or even more in worst case scenarios.

So, PCR is much more reliable. That's why we decided to go for PCR and supplement it with antigen tests. And you pool PCRs. What does that mean? Well, a PCR test is not cheap. In Germany, a lab would charge you somewhere in the ballpark of, let's say, 60 bucks for one test.

That's just the lab. That does not include transporting the sample from your campus or in your school or wherever you are in a company.

It's really just the money that the lab takes for doing the tests. If you pool ten, that means that you put ten samples into one probe. So, say you have a little seminar going on or you have a school class. There are ten students and they're all going to end up in the same pot, in the same pool, in the same test tube. You bring this test tube to the lab and you test this test tube as if it would be just one sample.

If this turns out to be positive, then, you know any of those ten has been positive or maybe two, that's very unlikely, actually. Usually, it's just one of those ten. So, then you need to do what they call 'resolve the pool.'

You have to run a second test of the individual ten probes. This sounds, at first, [like] isn't that insane? If you have to resolve a lot of pools, you create a tremendous amount of extra tests, but you actually don't [create extra tests] because you don't need to resolve a lot of pools.

Even if infection rates are high, you usually don't have much more than one in a thousand people that are infected. So, you have only one in a hundred pools that need to be resolved. A pool that tested positive is the only one you need to resolve. You still save a lot of money.

So instead of doing a thousand tests, you're doing 110. You still save eight hundred and ninety tests that you didn't need to do. And the accuracy and also the sensitivity is sufficient. Some people test 20 and 25 together instead of ten.

Some people test entire school classes in Germany. Ten is certainly conservative. You probably could easily crank it up to 15, which would lower the cost even more.

*Is there an upper limit to how many people you can realistically test at once in a pool?*

I think you probably need to discuss it with the lab. It depends a little bit on the equipment, the chemicals they use. Is it an old machine, a new machine? Right now, PCR development is extremely dynamic. People come up with faster tests that might be a little bit less sensitive but then you use a newer machine and regain the sensitivity. So, you really need to talk with the people who do the tests. But ten is what I would think is conservative, though I think 15 is easy, and I know people who are [doing] 30.

I think that you need to run some tests. For example, you take 30 and you go to a hospital, and you add a probe of which you know it's positive. And you see if you can still detect it. You do some pre-runs so you can quickly test it. And a good lab technician in a biomolecular lab knows how to figure out the maximum [number of] tests that you can put together. Sometimes it's also logistically not easy.

And sometimes, you know, the cohorts, maybe you want to, say, all the people that are together in a seminar, in a discussion session, in some study group or in a classroom, you want to put in one pool and you don't want to mix it with another pool, because you want to keep those together, because it's also more likely that there is some infection spreading among them. There are different reasons to consider but I would say somewhere in the range of ten to 25 is probably what I would feel comfortable with. But I [would] double check with the lab.

The test we are using is called the lollipop test. I don't know how well-known this is in the US yet, but it's quite common now in Germany. I know it from a virologist in Cologne.

The students just suck on a little stick. The performance and the quality of the test is almost as good as a professional PCR test. They can do it themselves. A three-year-old in a daycare center can do the test themselves.

And the students also take, in parallel, another test tube home. So, for example, my class or your class takes the tests and if the pool turns out positive, one of those ten guys is positive, the students are asked to stay at home, if they're already at home, and at home they already have another test tube. They take another test at home and a driver from the university comes and picks that test up and brings it to the lab so that the student doesn't have to go in and out again, risking community spread. You have to realize the thing that was and is so important, that part of the strategy is to demonstrate that a positive person sitting in isolation does the community a favor.

You know, you have to somehow support them and don't, like, let them run around and get a second test, no. You make it as easy as possible because isolation sucks already. So, you make it as comfortable as possible.

So, you make it clear that they have done nothing wrong, but they actually do something good for the society by staying at home. And I was inspired - it also came from the No-Covid group - I was inspired by Jacinda Ardern, Prime Minister of New Zealand. We had Michael Baker from New Zealand as part of the external advisors from the No-Covid initiative in Germany.

And he told me very early on, that you cannot just demand, demand, demand, but you have to also deliver something. And so, we work together with the student communities so that students in isolation get a delivery service. Other students go shopping for them, buying groceries and delivering to their house.

*Well, that's wonderful. And congratulations on your success. And Matthias, I'm wondering, did you accomplish this by working exclusively with your university's president and administration, or were there other decision makers and institutions involved, like, for example, were local health authorities involved?*

Absolutely. From the get-go, we talked to the local health department, just a front rank in this, their head there and Ute Telchert, who is the president of the Academy of Public Health in Germany. We worked together with them from the get-go.

Also, with the clinicians and the labs, of course, and the local hospitals. The collaborations were very good, even including the mayor, I talk to him on a regular basis.

I don't know exactly why it's worked so well here. I guess that the head of the health department at least is a very smart and science oriented guy, but he's also very practical. And when he realized that we can, for example, too, on the university level, that we can do the tracing for him, you know, if we have a positive case, we have to trace this. I call [the tracers] sometimes the sheriff's deputies. So, the sheriff would be the head of the Department of Public Health in Dortmund. And we have the deputies on the campus who kind of support him.

As soon as we have a positive case, the university immediately starts tracing. But, of course, we funnel all the information we have back to the Department of Health, but we give the students that tested positive some first instructions, guide them through the process: What's going to happen? [And] not to worry, what to do if A, B, and C happens. So, there's a call center telephone always available for those students. And we tell them, of course, call your friends, think about who you had contact with and tell them to get a test done, too, and stuff like that.

So that the communication with the health department, with the clinicians, was very important. This worked very well, I would say.

*Do you know if these public health officials and departments have also benefited from your work in what they do as well as the university?*

I think so. I mean, the one thing is, of course, we help out with the tracing. But I also think that we are actually performing public surveillance. There is no real surveillance done in Germany.

You test whenever you have reasons to test. So, you have had contact with somebody that is sick or feel sick or something like that, and then you get a test done. But we test a couple of thousand students every week no matter what.

And this is the age group that's maybe most important right now, the age group between the 20- and 30-year-olds that at least in Germany, many of the waves that we had started in this age group, and this is the age group that, as you know, only since recently can be vaccinated in Germany. So, we have continuous surveillance. And as soon as we see some movement of virus within campus or off the campus, if you see something in this age group, you see some positive tests, we immediately report it to the health department, as part of surveillance for the city, which is, after all, the ninth biggest city in Germany. It works. It works quite well.

On a different note, we use the power of the university: we have a lot of students who are motivated, who like to be engaged, have some free time, and do good quality work [that is] sometimes fairly inexpensive.

When we heard from the health department that they struggle for personnel and they struggle for people with knowledge in IT and software, I called the Computer Science department and asked, 'don't we have a couple of students that can help the local health department?' And within five hours we had five students. It was a Friday afternoon. And I remember on Monday morning we had 50 students who said they would be happy to support the local health department. We said that we only needed ten. We sent them down and they are still down there at the local health department helping the people there - they are a little rusty with IT and software - helping them to get things done but also helping them with the tracing.

So, this is another way, I think, where the university can [and does] really strongly support the local structures: the campus is just a big box with lots of people in it that are usually very excited. They are young. They want to do something. They want to get out of this. And of course, they have a self-interest to get out of this as well.

*I understand, in addition to the success you've had at Technical University, Dortmund, you're also involved in projects at the municipal and regional levels. In other words, projects which are much larger in geographic area and higher in population than your*

*university. And that sounds like a challenge. So, I'm wondering first, how do you keep all these larger areas green?*

My hope was that the project that happens at the University radiates out into the city, because you have this campus of people that [like to] figure out how things work. They have some ideas and can work with the locals.

If a city like Dortmund were to flip to a Green Zone, I think that would be a strong message in Germany, because Dortmund is not an easy city in terms of social and economic problems. It's in a very highly populated area where it's much harder to keep a Green Zone green.

And we do a few more things. For example, we provide information for elementary schools. We try to get the community outreach program bigger and bigger. We make what we call "kid's universities," where little kids can ask scientists [questions] and we put [the events] on YouTube. And, you know, you also get a little bit of information through the schools to some parents, So, parents who are very uninvolved or may even be afraid of the local authorities, and therefore also afraid of vaccination programs - to get some information through the students to the parents. We also go to schools, so I went to schools, high schools and all kinds of grades came and could ask a question. And it was aired into the entire city, and it's recorded and it can be watched everywhere.

So, you try to reach a bigger and bigger population from a safe space. To give some practical advice on how to really keep those Green Zones green, I would say it's the same idea as it is on the campus: you have those three pillars. You need to vaccinate, you need to test - so you know what's going on - and then you need to avoid infections, of course, by masks, ventilations, social distancing and cohort formation.

We need to test the students when they come on campus. If you are a county, you need to test the people who come from a Red Zone into your county, when it comes to local traveling. And from the point of view of a country, you need to be very careful with international traveling.

So, you always need to test and watch those who come in and out and watch where they come from. And if they come from Red Zones, then you need to be particularly careful, which means very strong restrictions in terms of masks and testing every single day.

But I think you also are referring to what my advice would be on how to get this on a larger level, because, honestly, we are not there yet. Really, it has established itself as very hard to do this with a larger population.

I would say the power of the community struck me, that the local communities are extremely powerful. And I think at the beginning, when we were working with politicians in high, high up positions, I mean, maybe you have wasted some time.

Politicians seem to be busy with other things. Ah, you know, I thought. I at least - I had a hard time sometimes seeing what they really actually want. But I think there are so many groups out there like EndCoronavirus. There are many offspring of EndCoronavirus.org, organizations from the U.S. and Germany. There are many local, No-Covid groups all over Germany and very many "Zero Covid" groups all over Europe and all over the world. And there's the World Health Network. So, there's a lot, lots, lots of local community groups.

I would not waste my time with politicians that don't have the courage to do it. If you don't feel like they really want to do something, if you don't feel like they are motivated by getting things better, but rather motivated by polls, then don't waste a minute with them. So try to find some local authority, some decision maker that seems to be interested and connect them with all those local communities. And those local communities are usually well connected with the scientists. So, you have this connection of three pillars, the science, the local communities, and then you have the local authorities.

This would be the best shot, at least from what I have experienced in Germany, for me.

*So, what I'm hearing is we don't have to wait for leaders on a nation state level to act. We can act locally within our own communities to bring Covid close to or at elimination.*

Well, yes and no. Because on the one hand, obviously, a large portion of the world - 10% or 20% or so - have demonstrated clearly that they can live on and with zero covid. And what it takes is that the decision makers or politicians have the balls to say this is the path we go. And simply by doing that.... Those countries who've decided to go for zero covid have managed to go for zero covid and most problems disappear. All those problems that result from - pardon my language - from the stupid idea that we have to coexist with the virus just go away if you go for zero.

On the other hand, the last 1.5 years have shown me at least in Germany and large parts of Europe and probably similar in the United States, that you need to start from the community level. The community level seems to be the level that needs to be empowered, and from there the Green Zone ideas and the ideas of Zero Covid need to be put into reality. Certainly - a little side note - all this may change as new variants like the Delta Variant, Lambda variant - and the next variants, which will certainly come, don't be surprised again - will create a new experience of danger for example for children. If kids end up in the hospital or even the ICU I can easily imagine the narrative of policymakers and decision makers changing very, very quickly.

*But, of course, the Green Zone strategy as a viable long term strategy hinges on global success. So, you may have already touched on this, but is there a potential to have a sort of snowball effect where more and more areas contiguous to one another or not see the advantage to an elimination strategy and also want to become virus free?*

I would think so. I think so. I think the lower the numbers go, the easier everything gets. And you see this if you talk with inter-and multidisciplinary groups: the economists say the same thing as the physicists and the biologists and the medical doctors.

They're really - the people who are working on this concept - they say 'The lower the numbers, the better the economy. The lower the numbers, the easier it is to keep the schools open. The lower the numbers, the less deaths and people in hospitals we are going to get. The lower the numbers, the more freely we can live, then, and can open up our cultural programs as well and stuff like that. So getting the numbers down, having the example right in your face - imagine you have a state in the US or a state in Germany or a larger city, for that matter, that really established a Green Zone model, and they can have a party there while you are sitting in your lockdown number four or five - I could imagine that this could put a spark and motivate the local groups to say 'OK, let's do this, too.' Just look at the facts, look at the countries, look at the cities, look at the states that have managed and look how they live. But it's true. In the same



sense, the Green Zone areas somewhat depend on the fact that other regions follow. Because you cannot stay green forever by yourself.

Like imagine you have a house in a big city, and nobody gives a damn about fire hazards, only you. Sooner or later your house is going to burn, you know what I mean?

So, you are somewhat dependent on that more and more people join the Green Zone model. I don't think the entire world needs to join. But the more people around you join, the easier it is going to be to keep a Green Zone green and the more free you can live.

And of course, between Green Zones, you can travel freely and then form those bubbles and all this kind of stuff. And at some point, hopefully, we're going to have red bubbles and the green is the normal and the red is the bubble that needs to be contained.

So, on the local level, what are the practical obstacles to realizing a Green Zone strategy?

I think on the local level, you really just need to find the right person that has courage. And the more you find, the more you're going to move along. You know how this is. You know, to find the first couple of people that have the courage to start, is the hardest.

And once you have a few, then you get towards a tipping point where more and more people will follow. So, I think the concepts are there. What needs to be done is clear. Now, you need to find local authorities that want to do it.

Don't waste time to convince someone who gives you the impression from the get-go, he or she doesn't really want to do it. Find the ones who do want to do it and they do exist. Mayors out there or governors out there that actually would like to do it differently. Find them, support them, form the network around them, give them the scientific backing and give them the local community groups that can do a lot of the work.

*That's very encouraging.*

*It seems here in the United States. One of the primary barriers to effective and rapid contact tracing and isolation are concerns over individual privacy and medical confidentiality. Are those also concerns for you in your work establishing Green Zones in Germany?*

Yes, certainly there were a lot of debates around the entire tracing process. Who is allowed to receive or transmit what kind of information? Also, when it comes to the so-called Corona-Warning App, a little application on your cell phone that informs you whether you have been close to somebody infected or not, and what needs to be done next.

And indeed, we do have an expert for the interface between technology and privacy in our No-Covid group, which is Denise Feltner, and we discussed this a lot, and this was important. But nevertheless, the concepts and strategies that we decided should not depend on a single technology or a single mood or idea of a judge who likes it or not.

So, we need flexible, adaptable concepts. You imagine you're somewhere in a school or university, and let's say ventilation is a problem. Can't be done. Filters are too expensive so it's just a money issue, or you're too high up in the building to open your windows, or it's too cold. You know, I have a friend in Mexico who is part of the Covid Action Group who says doing schooling outside is not an issue. Well, imagine the winter in Scandinavia.

So, the situations can be very, very different. Well, if you can't do filtering, and you can't open windows, for whatever reason, you get better quality masks, you do better cohort formation - or smaller groups - hybrid classes, or you do more testing, or a more aggressive vaccination campaign. Whatever it is. We wanted to provide a set of tools that can be adapted to the situation. That's key. It can't be too rigid.

And, also very important, is to explain to people why it is important, to follow certain procedures, to follow certain rules once you test positive for example. And if people understand, if the students understand, if the parents understand, they will follow more likely, even without personalized information.

There's a very good professor here at the university of Erfurt, Germany, her name is Cornelia Betsch, I think she's a psychologist by training, and she's an expert in health communication. I think in particular for vaccinations. But she does monthly polls where she asks groups of people: would you get vaccinated? Would you get your kids vaccinated? How do you now perceive the risk of getting infected? Or, getting sick? And do you think the government does a good job? Do you think the measures we have are proper to the situation? It's stuff like that. One of the things that came out [of her work] is that if people understand, the compliance with the rules improves.

It's also more likely that they get vaccinated if they understand why they should get vaccinated. And they understand the history and power of vaccinations, and how important it was for life, especially for kids, but the strategy needs to be transparent. People really need to understand. And they can't understand the strategy if the strategy is not transparent. It should have a perspective.

So, it should not have this neurotic opening and closing and opening and closing, this stuttering lockdown that we have right now. And it has to be explained and communicated in simple terms, and in pictures. So, you need people that understand communication. Not just science geeks, to phrase it simply.

And that's the way we did it, and the way I do it, and so we put a lot of effort at Dortmund in communication. And luckily, we have a very good person, Eva Proust, who from the get-go who put a lot of time in presenting and communicating the measures and steps the university takes. We also went to local high schools, the Anne Frank School for instance, to answer everything the students had on their mind, everything they worried about when it came to - for example - vaccination - no matter how wild their theories were.

You have to keep in mind when you discuss these questions no matter how crazy they are, some of the parents of those students came to Germany from countries where they were treated terribly by the authorities. Why should they trust our authorities here? The local health officials for instance. But giving students direct access to science in public discussions so the students can bring it home to the table to their parents, this may help to resolve some of those fears and eliminate some of those crazy ideas, especially those - you may know some - that exist around the topic of vaccination.

*Matthias, may I ask you to summarize the big picture of what we need to do in just a few sentences?*

If I had to explain the concept in a few sentences, I would say: The first pillar is vaccination. The second pillar is testing, tracing, and isolation - and the final and third pillar of getting rid of the virus, or controlling the virus, is minimize exposure: masks, small groups, ventilation systems, physical/social distancing.

But on top of that, you also need to communicate this well, so people understand. That's the second part.

And the final part is to realize the power of the communities. Empower the communities by connecting them to the scientists, so their approach is scientifically guided and well founded. And if your network has grown enough, you approach the leaders and decision makers. Not just any kind of decision makers, but you approach those you know have an interest in getting things done. And I strongly believe that this could set the seed, or form a nucleus, for more and more people, and more and more leaders, and more and more groups, getting things done, and get us out of this mess.

I hope that helps.

*Absolutely. Well, that brings us to the end. Professor Schneider, thank you for being here today and thank you for your thoughts.*

Thank you, Alex. Well, it's good to meet you.

*You as well.*

[end]

## LINKS

Matthias' Covid-19 homepage at DTU: <http://med-bio.physik.tu-dortmund.de/cms/en/Home/COVID-19/index.html>

No-COVID Europe homepage & Green Zone Strategy resources: <https://nocovid-europe.eu/>

Cornelia Betsch: <https://twitter.com/corneliabetsch?lang=en> and Cornelia's Psychology and Infectious Disease Lab: <https://www.uni-erfurt.de/en/philosophische-fakultaet/seminare-professuren/medien-und-kommunikationswissenschaft/professuren/gesundheitskommunikation>

Covid Action Group homepage: <https://covidactiongroup.net/>