WEBINAR TRANSCRIPTION:

LESSONS FROM GERMANY ON MANAGING COVID-19

Presented by Prof. Karl Lauterbach

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INTRODUCTION

Minute 00:03:24

Thank you very much for this opportunity to explain a little bit about what we are doing in Germany.

I will organize my talk focusing on three issues. First, I will talk about the situation in Germany, what works well in Germany, what does not work so well and what needs improvement. And I will also express my views on the virus, which I have discussed with many of our leading virologists and epidemiologists, as far as that is of importance regarding what we will do in the future.

The slides will be made available by the IDB. I will not show the slides because they would slow me down, so I would like to focus on what I believe is most important, rather than going through all the slides. But more detailed information is available on the slides and the charts and I am also prepared to deliver additional information if you get in touch with me directly.

Current situation in Germany

Minute 00:04:50

Let me start off by describing the current situation in Germany. As of now, close to 3000 people have died from COVID-19, which is bad, but since in total we have about 125,000 people infected by now, the fatality so far is less than 3%. This compares favorably, for example, to Spain, where the fatality rate is, roughly speaking, 10%, Italy 12%, France 11% or the UK 12%. So if you compare this to most other European countries we are currently doing better in terms of both, the percentage of people who die having been infected and also in terms of the total number, because about five weeks into the disease we still have less than 3000 people who have lost their lives.

So, what is, most likely, the reason why we were luckier than other countries? First of all, the disease came to Germany fairly late in the game. So therefore, we immediately understood, from looking at other countries, how dangerous COVID-19 is. And four weeks ago, we decided to basically have an immediate lock-down for most of the life. What we have basically done at that point, as of March 16, we have closed the schools, we have closed all universities, we have closed small businesses where people would have to walk in, we have closed all restaurants and cafés and we have shut down public life so we would not permit, for example, social gatherings of more than two people and, obviously, we would not allow any major or bigger events to happen. So, basically people have been limited to their house, and lock-down has been very successful.

The lock-down was also followed by, what we call mass testing. What we basically did was that everyone who appeared to have symptoms of COVID-19 – and we specified the symptoms – was immediately available (considered) for free testing. So if symptoms were visible and you were in contact with someone who already had the disease or came from a region where COVID-19 was prevalent, for example in other European countries, free testing was available and quarantine was available and we supported this strategy with, what we call a big umbrella for the population, to make sure that people who do not go to work nevertheless are protected in terms of their livelihood.

Protection of livelihood

Minute 00:08:18

What we did, in order to protect people's livelihood, is that we placed and "out-of-work short term allowance" for people who were out of work because their businesses were closed. They received 60% of their former income [audio interrupted]. We also made available large limitless grants. So, we covered small businesses by an immediate support, large businesses by grants and employees by an "out-of-work short term allowance". That made clear that we did not want people to continue to work for financial reasons so the shutdown was immediately supported by a major support effort by our Ministry of Finance. I personally believe that without this support by the government the lock-down would not have worked. But the lock-down worked well because nobody had to go to work for financial reasons

Communication

Minute 00:09:50

We also decided that we would communicate what we were doing, the nature of the virus and the risks we are taking, in a hard and open way. That was decided very early on. That was a government decision that we would communicate the threat to the population in an open, hard and unbiased way. We were saying: "Germany has a problem". The news about the medical situation was communicated by doctors, virologists and epidemiologists. It was not directly communicated by politicians because for politicians there is always some mistrust about whether they understand the situation fully. But the hard and open communication about the disease was done by doctors and epidemiologists. And so, there was a daily communication by our leading virologist or infectious disease government research institution, the Robert Koch Institute, named after the epidemiologist and virologist Robert Koch. And that went on air every day communicating to the public the current state of the situation, how many people got infected in the last 24 hours, how many people died and the current infection rate. So, we had an open communication by the Robert Koch institute and by virologists and epidemiologists. The politicians agreed that they would not use this catastrophe as an opportunity for party politics. So, the politicians supported the lock-down both the governing parties and the opposition parties. We are currently in government, the Social Democrats and the Christian Democrats, but there are a couple of other parties, for example the Greens the AFD, or the Liberals, which are in the opposition. But they did not challenge our decision. There was an agreement by the parties that we would not make this an opportunity for gaining political

support but to communicate this in an even way so that the population would understand that this is really serious and not about politics in general but we do have a problem. So, the information was communicated by doctors and the political decisions were communicated by the government but opposition parties went along and did not try to gain political grounds on this one.

Hospitals and infrastructure

Minute 00:12:34

In the last 20 years, and I think this is also important to understand why Germany has been lucky so far with what is going on, we have invested in hospitals. So, for quite some time we have supported hospitals in that way and by now we have about 500,000 hospital beds, which is the highest density of hospital beds in all of Europe. We have about 30,000 ICU beds, which is, also roughly speaking, the highest ICU bed density in Europe. There are 20,000 ventilators available for ICU support. We are currently trying to double both, the number of ICU beds and the number of ventilators. Therefore, Germany was also in a position to offer treatment, both ICU and ventilator treatment, to whoever needed it. No one was treated without the ventilation support, ICU support or what they needed. So, we have had enough ICU treatment and ventilators available for every new case so far. And even now we have a reserve of a couple of thousand ICU beds and ventilators that we currently do not need but hold as reserve for more cases to come.

What did not work?

Minute 00:14:04

Unfortunately, we did not have a national pandemic plan available. We were not prepared in the sense that we did not have enough protective gear available. We did not have enough surgical masks or higher quality medical masks for medical personnel. We also didn't have robotic testing. We have a very high testing capacity for SARS-CoV-2 and this is in place now. We did more testing than any other European country. Nevertheless, we are still in a position where we would like to do even more testing than we are doing but we don't have enough testing capacity. We are currently running at our full capacity but we would need more tests to be available.

Plans for the future: masks, app, testing

Minute 00:14:58

What will we do in the meantime and what are the plans for the future? First of all, we will have to ease the lock-down because we have been successful with the lock-down over the past four weeks. We reduced the number of cases quite substantially. We currently have what you would call an effective reproduction rate of less than 1. So basically, at that speed the epidemic in Germany would be leveling off or would be limited. The lock-down is working but we cannot continue forever with no schools open, no universities open and no businesses open because the economy, which is a strong economy, will not be in a position to sustain this for long. What we will try to do is to open schools and businesses that are substantial for maintaining public life and the economy to a degree that we are able to carry on. We will rely on masks for this. So, we will basically increase the number of masks that are available because studies have clearly shown that medical masks protect, not only the person wearing the mask, but also the person who is in touch with someone wearing a mask. So, in support of social distancing masks are substantial and a necessary ingredient of any next step. This is my and also the government's reading of the evidence. So high quality masks need to be available and wearing masks in public life, in public transport and most likely in businesses where you are in close contact to people will be made mandatory if masks are available.

We will also invest, and we have been preparing this already over the last couple of weeks, a Bluetooth app, which is in a position to inform everyone who was close to a person – two meters or less or more than ten minutes – who is infected. Studies have clearly shown that such an app can greatly enhance the fight against the disease because it is almost impossible to contact people who have been in touch with someone who has been infected before these people have already infected other people if you contact people by hand, if you basically ask the infected person who they have been in touch with and then contact these people by phone, in writing or however. It will not work. The only way to get ahead of this curve is to have a Bluetooth app available, which immediately warns those people who have been in touch with someone who is already infected so that these people get the information immediately and can get tested and can also isolate themselves so that you limit the spread of the disease by those people who have been in touch with someone who is infected and are at risk of infecting other people.

Thirdly, we will invest heavily in even more tests. We are currently running, roughly speaking, about 350,000 tests a week. We want to increase even that number to the highest possible

degree because it is our opinion that it will not be possible to contain the disease and new cases if we do not combine mask wearing, contact tracing with enough testing. So, the three pillars of what we will be doing, once the lock-down is a little bit eased, are, first of all, wearing masks in public places, in public transport and in businesses. Secondly, we will have a Bluetooth app available which, after a person is infected, immediately informs all the people who have been in close contact with this person who is now infected, in order to get ahead of the curve and that these people get the information before they infect other people. And we will do mass testing around all new cases in order to limit the virus around the new cases.

How long will this take and what do we know?

Minute 00:19:42

Let me focus on what we believe how long this will take and what our virologists – I am in touch with many leading German virologists about that – say. Obviously, as an epidemiologist I have been doing a lot of reading myself. What is our view on how long this will take and what do we know? From the German perspective we do not really know how dangerous the virus is. Currently, we only have one study, which looks at the fatality given everyone who got infected, so not the fatality of the people who have the disease but the fatality of everyone who got infected. We have only one study that looks at this. This is a representative study in the region of Heinsberg close to where I live, close to Cologne and Aachen and the very west of Germany.

That study appears to, let's say, show a fatality of those infected in Germany of about 0.4%, less than 1%. That would nevertheless mean that the disease is much more dangerous than, for example, the worst flu epidemic and is also very transmissible. But the fatalities that we currently have in Germany are low but that is only possible because currently we can treat every new case with the best of our equipment. So, we can organize ventilator support, we can use extra-corporal oxygenation, ECMO treatment for everyone who needs it. So currently we can cover all new cases. If we have many more cases that may no longer be possible so therefore, we have to be very careful. But it is clear that if we are able to limit new cases to a reasonable degree that we would be able to sustain fairly low fatality rates, most likely for a longer period of time.

We currently do not know exactly when and if at all a vaccine will be available. Nowhere in the world anyone has ever been able to come up with a working orona virus vaccine. There are so many things unknown about the virus currently that we truly cannot say whether a vaccine will be available in one year or two years, which, from our perspective, two years is much more

likely than one year. I personally do not know for sure whether we will get a good vaccine at all, as a matter of fact. But this is a long discussion, which is more medical than what we are going through today. We also do not know if there is immunity and for how long the immunity will last. Also, we do not know how successful we will be with early treatment rather than late treatment. Therefore, from our perspective, public health prevention as a combination of, let's say, social distancing carrying on without a lock-down but nevertheless being careful and having some precautions of social distancing in place even in the future in combination with wearing masks in public and in combination with the Bluetooth app, which immediately contacts people who have been in contact with someone who is infected and also in combination with mass testing. This is most likely what we will be looking at in the next couple of months, maybe in the next two years in Germany.

Summary

Minute 00:23:32

Summing up, we have early on decided on a fairly rigorous lock-down. What has worked is that we were lucky to have a high density of hospital beds, ICU beds and ventilators. We, very early on, supported employees and small businesses so that people did not have to come back to work in order to survive. And what has also worked, in my personal opinion, is that from the very beginning we have communicated what we know about the virus, all new cases and also what we do not know about the virus. We have communicated this in a hard and open way. That was necessary in order to get the support of the population to follow what we were doing and suggesting. What has not worked well is that we were not prepared and did not have a pandemic plan for such a disease, despite the fact that we should have had such a plan. What was also not working very well was that we did not have masks available.

Let me finish by pointing out that we believe that this is a long run. This is a long run disease and we believe that it won't be easy to get medical equipment, for example gowns, protection gear, masks and also even ventilators. We do not believe that let's say the global market for this will be fully functional. So therefore, we have massively invested in producing all of this in Germany. This is not working, as of now, but we are trying to become self-sufficient in the production of billions of medical masks in Germany so that the public can wear medical masks in public life. We have invested big time in order to make mass testing for SARS-CoV-2 available to everyone who needs it. And we have also invested heavily in making the app available. I expect that the Bluetooth app will be available in the next couple of months already. But we do not, as of now, rely on the international market to be completely open for these sensitive

precautions. Therefore, we have made money available to all companies, which are investing in that and also provide them with guarantees. If they can deliver, we will buy whatever they can deliver. This is the situation as of now.

Questions and answers (moderated by Will Savedoff)

Minute 00:28:27

Questions related to testing

There are several different angles to the questions about tests. For one thing, people are asking about the different types of tests, whether these are mostly the molecular PCR tests or serological tests. Do you use both and if so, how are they being used? Someone asked a question about pool testing and if that is being done. You mentioned over 350,000 tests are being done a day. Are these produced in Germany or are you obtaining these from abroad?

Answer Dr. Lauterbach

First of all, the testing I was referring to is PCR testing. We do some antibody testing as well but this is of minor importance because we believe that the current prevalence of antibodies in the total population is still at about 1 % or less. So, antibody testing is not really in the focus of what we are doing. So, it is PCR testing and this PCR testing is done within Germany using the resources that we had available in the country beforehand.

We do not do massive pool testing because we have a fair view on what is going on in different regions so we do regional epidemiology using the PCR tests that we have from the respective labs but pool testing is rarely done. So, the 350,000 tests that we I was referring to and that we were doing in some weeks, these are strictly speaking PCR tests.

Question

You basically also aligned an industrial strategy to get masks produced and increase the number of ventilators. Is that also being done in terms of getting testing capacity ramped up?

Answer Dr. Lauterbach

Yes. We established two offices that try to support what we need for medical reasons. We have one office in the Ministry of Health that is basically trying to buy needed medical supplies from abroad, everywhere basically. That was strategy one. Now we have another office in the Ministry of Commerce. Basically, the Ministry of Commerce is in immediate negotiations with companies that can produce ventilators, tests, masks, medical gowns or medical supplies and whatever it takes. These negotiations lead to contracts, which are open house contracts. So, whoever follows the conditions of these contracts can enter the contract and it is then guaranteed that the government will pay for these devices or medical protection supplies. From the economic perspective we can say that the cost for any medical supply that we are looking at here is very

minimal, in comparison to the economic costs of even a single day or a week of the economy being down. So therefore, medical costs themselves are unimportant and are minor in comparison to general economic costs and therefore we decided to have this open house system and to have immediate negotiations with companies in Germany, which can provide the supplies that we need. In parallel to that the Ministry of Health is running an office, which tries to buy equipment internationally, where it is not needed more than in Germany.

Question

This is also related to testing. Once businesses start opening up, if people have been tested and are shown to have been infected, so there is a presumption they might be immune, there is a discussion in the press about people getting certificates that allows them to go back to work differentiated from other people. And yet, that raises all kind of other ethical and social controversies. Has Germany thought about that and do you have any views to share about that?

Answer Dr. Lauterbach

We have thought about this but we don't think this is a meaningful strategy. First of all, less than 1 % [audio interrupted]. We put the focus on, let's say, that everyone who does not have immunity is so well protected that even a non-immune person is protected. We do not want people to rely on their immunity but they should rely on the protection that we try to make available to everyone.

Questions related to treatment protocols

Once people are at the hospital or are being screened, what is the range of protocols for the treatment? How many days, on average, are people spending in the ICU?

Answer Dr. Lauterbach

We don't have national data on spending time in the ICU in Germany so far. From what I see, the region where I live is basically the region, which was most heavily hit in Germany - the Cologne-Aachen-Heinsberg region - and the colleagues of mine who are in the field say that people are on average on the ventilator for any time between five and twenty days.

And the treatment protocol is a standard treatment protocol. You start off with oxygen and if it is no longer possible to carry on with oxygen then you start ventilation. But the protocol is then basically an individual protocol where you work, for example, with PEEP support or anything like that according to the individual patient. So, we do not have a national protocol. And since we do not have any specific medications available that are currently evidence based, we basically try to [audio interrupted] with as little intervention as necessary because we do know that the ventilation

itself, especially for older people, is not easy on the lungs and some studies show that for people who have been on a ventilator for a longer stretch of time. And we do not exactly know if this is due to the Corona virus itself or possibly due to the length of the period of ventilation and we also know that any long-term ventilation for elderly people, for whatever reason, is hard on people's bodies and also on their minds. We do know that some cognitive decline goes along with long-term ventilation, whatever the reason is. So therefore, we try to limit the ventilation time, for whatever reason it is needed and to get by with as little ventilation as possible. But this is my summary of what we appear to be doing, speaking to the colleagues here in the field. We do not have a national protocol for that, as of now.

Questions related to health workers

Are the infection rates high among health workers? Are special measures being taken to help them isolate from their families? Given the extra demand, you have talked about the hospital capacity in terms of the equipment, but there are also personnel requirements. Are you able to use the existing health care workers or have you having to mobilize other people with new training?

Answer Dr. Lauterbach

So far, we have been able to work with the health care workers, in particular nurses but also doctors that we do have in the hospitals. And in terms of the infection rate of medical personnel, yes, we do have a problem there, in particular in long-term facilities like nursing homes, for example. But we don't have good numbers. The best number that I have currently available for you is that about 2% to 5% of all cases involve medical personnel. But this is a rough estimate and it is not really scientifically established. We are doing all we can to protect the workers but we do lack some protection gear in nursing homes but not in hospitals. So, if we have a problem of, let's say, shielding medical workers it is more limited to nursing homes and it is also becoming better because in nursing homes we underestimated the risk for both, people who are in need of the care and also caregivers. But in hospitals, so far, luckily, I should say, it has not been a big issue.

Questions related to strategies for de-confinement

You are very clear about the strategies of de-confinement, for relaxing controls, in terms of masks, testing and this app. In addition, you mentioned gradually opening different kinds of facilities and places. Is there some specific thinking about schools? It is something that has come up frequently in a lot of debates, given the differences between young and old people but the fact that schools are also involved in a lot of transportation, other adults being there, etc.

Answer Dr. Lauterbach

We currently haven't decided on this. We will take a decision on that next week Tuesday and Wednesday. So, we are basically a couple of days away from that decision. Clearly, in my personal view, it is very important that the youngest children are not immediately permitted to go to school because they will not be able to follow instructions of social distancing or wearing masks etc. So therefore it will be the older students that will be permitted to go to school and I personally also think that it is highly unlikely that we will have a standard classroom teaching available so we may come up with a combination of e-learning and in-house teaching and we may, for example, divide classes in morning and afternoon classes. But all of this is, basically, work in progress and I will be involved in these decisions in the next couple of days but we have not made them as of now. And we will have to make them in a couple of days.

Questions related to pharmacological treatments

We are getting quite a few questions about pharmacological treatment, the idea of using transfusions from people who already have anti-bodies or the debate about Chloroquine, and so forth. What is your understanding, from your experience and from what you have been reading and your own expertise, in terms of the most promising pharmacological treatments for COVID-19?

Answer Dr. Lauterbach

Let me start with Chloroquine. I personally do not think that this will be a game changer, for many reasons. And it is also a drug with substantial side effects that have to be taken into consideration. I would be surprised if that was really a game changing treatment here.
When it comes to antivirals, antivirals are important in the early stage of the disease. But those you have to basically use in many patients who will never get really sick, as a matter of fact. So that is also a long-distance shot looking into that.

Regarding the antibodies we are currently rolling out a big study about this. We are doing a national study on antibody treatment from patients who survived the Corona virus. And there is another study about this going on in Canada, which is a big study as well. We currently don't know if this antibody treatment from former patients is working or not. So therefore, it is not widely used. But we are doing a big study Germany wide and there is a Canadian study going on as well, but I don't think that it is likely to be a major treatment because it may work in some very severe cases but the amount of serum that you need in order to do this is quite substantial. So later that may be available to some patients but not too many (patients) because simply the number of antibodies that you need is not minor. As of now, no one exactly knows how this will work and

how well it will work. I think it is likely to work but in standard treatment it is not used in Germany. We are testing it in a nationwide big study.

Questions related to masks

We are talking about very resource constraint conditions in most of our region and this issue about masks seems to be a very important debate at the moment. Clearly you in Germany have made a decision that this is worthwhile. The first question is: the masks that you are talking about are they actual N95 type masks that you are talking about producing? And secondly, what is it about the evidence and basic views that you have that led you to that conclusion that masks could make a big difference as part of social distancing?

Answer Dr. Lauterbach

N95 masks will also be produced and will be used, for example, in the medical field. But for the public field standard, high quality surgical masks, medical masks basically, that is what we were talking about. Because studies have quite clearly shown that both, droplet contamination and also the bio aerosol contamination is less likely if you are wearing such a mask. The studies that have been published, and also the meta-analysis of the studies are clearly showing that if everyone wearing a mask this is not a perfect protection but, for example, from my personal reading, I would assume that 95% of droplets are shielded from the person who is in front of someone wearing a mask. So, masks are really helpful here. They may not make social distancing unnecessary. So social distancing is used in addition to surgical masks. It is impossible to basically go for surgical masks and no social distancing. But the combination of social distancing plus masks, in our reading of the literature and also in my personal reading of the literature, can be quite successful. It can only work if the masks are higher quality and are available to everyone and also in masses, as a matter of fact, so that they can be exchanged regularly and also if there is a public education on how to wear these masks, what to expect from them and educate the population that this is only in addition to social distancing.

Question related the health care system in general

What about dental service, does it have any restrictions? That breaks open a general question of how the health system is functioning with all this pressure on hospitals to respond to the Corona crisis.

Answer Dr. Lauterbach

This is a very good question. There are emergency cases and cases that cannot be postponed. So standard dental care is not provided and we have decided to support dentists in our small

business package to make sure that they do not have to offer these services at the risk of themselves and the patients. The rest of the medical work is also very limited. We have postponed all elective surgeries in order to make the specialists available for, let's say, for anesthesiology or ICU treatment for the corona cases.

So elective surgery is currently not done in Germany. Emergency surgery is done obviously and also cancer surgery or heart surgery wherever necessary etc. But that can be combined because we have 500,000 hospital beds, so we have a high density of hospital beds and we also have a fair number of doctors at the hospitals, also among the highest number of doctors in hospitals. Nevertheless, I should say that the standard medical care in Germany is not anywhere now it was before. There are some severe limitations, obviously and it also extends to fields like physiotherapy or orthopedic treatment etc. So, whatever is not needed is not provided. And we have come up with a benefit package for those hospitals that do not treat Corona patients and can nevertheless do elective surgeries. They are supported by sickness funds and the government so that they do not make losses because they simply cannot perform their work.

Question related to Latin America and the Caribbean

There is a whole range of questions about how we can learn from the German experience for the countries of Latin America and the Caribbean, many of which have fewer resources. Given the experience that you have had in Germany, it sounds like the lock-down was critical, you are recommending masks, which is something that countries can do relatively inexpensively compared to finding ventilators and these other things. What are the range of things from what you have seen in Germany that you might recommend to our countries, in terms of priority setting for how we use the resources and what strategies we use and what kind of communication we give?

Answer Dr. Lauterbach

Let me start with the communication. I really think that what we have done worked, at least to some reasonable degree, because we were very honest and open and hard about communication. If the communication is mixed, for example if leaders in the countries are not really honest about the reason why this disease has come about, not really honest about the virus or about the risks to the population and if they underestimate the risk, then the communication will not work well. So, isolating the medical communication from the policy communication I think is worthwhile. People must trust the communication; otherwise they will not follow the rules.

Number two social distancing is priceless. It is so important. Without the social distancing we would not have been able to be a success at all. I mean social distancing is way more important

than whatever we can do in the hospital. Therefore, social distancing, in combination with masks, is very important, and also in particular very important to countries that lack some of the high-end medical resources that we are currently employing in Germany.

I should also say that an app is a good idea for countries that are not that affluent because mobile phones are available almost everywhere. And the Bluetooth app, which is used in order to get in touch with the contacts, which may have been infected, is also very important. So, I would say that the three pillars of testing, apps and masks are a good strategy also for poorer or middle-income countries to be followed together with an open communication. I also think that ventilators are critical. If there are more cases you will need ventilators and there are cheaper ventilators on the market and it may also be possible to produce ventilators. You do not necessarily need high-end ventilators to support patients in a critical condition and to make a difference. Therefore, I would advise you to, very early on, negotiate with small businesses and big business that you become independent from buying this equipment from outside. Because the market is currently not really working and prices are currently paid that are out of proportion. So that is also something that you need to take into consideration. Try to get as independent from imports as possible because this may be a long stretch and the international market may not work to the degrees that we are used to see it working and it may work against you.

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