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Q&A: Michael Levitt on why there shouldn’t be a lockdown, how he’s been tracking coronavirus | The Stanford Daily

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13-17 minutes

Michael Levitt is a Nobel Prize-winning structural biology professor at Stanford who has been tracking the coronavirus consistently for the past six months. He is one of several scientists who have been advocating against the lockdown and backing alternative theories on the future of the COVID-19 pandemic. Levitt is not an epidemiologist, but has been studying the disease, using methods and data different from what most epidemiologists have been using.

The Stanford Daily (TSD): How did you generate your first few predictions on the coronavirus?

Michael Levitt (ML): I started to look at the numbers when there was no one looking at the numbers — on Jan. 27 and Jan. 28. There were only a few cases in two places after six days. The first thing I was really concerned about was the death rate in the province of Hubei, where the outbreak started, and then the rest of China.

What I noticed right from the very beginning is that the case fatality ratio was more than 10 times higher inside Hubei than

outside Hubei.

Many people generally look at the number of cases, the number of deaths, the death rate, but there was something that I did then, which was probably out of ignorance, that ended up being very useful: Looking at the number of deaths today divided by the number of deaths yesterday, and calculating the ratio and the percent increase.

When I looked at the percent increase, it went from a 100 to 120 to 144 percent increase and so on. And that becomes a very big number, very quickly. When I did this on Feb. 1, I noticed that the numbers for the ratio of deaths today over deaths yesterday had gone from a 30% increase on the 28th of February down to an 18% increase. After four days it had gone down steadily from a 30% increase per day to an 18% percent increase.

I didn't publish it anywhere. I made a two-page PDF and sent it out to people through WhatsApp and then actually got on a flight. It ended up getting like 2 million [views] pretty quickly and suddenly I actually had skin in the game. So I started to study the numbers every single day. I wrote 24 reports in February, each day, just doing a bit more analysis, and trying to predict when the pandemic would end.

TSD: For your earlier predictions, were there any mistakes that you made or anything that you didn't account for when making them?

ML: There were a lot of things. It's very hard to know what the ending total number of deaths will be, but there are ways to try and calculate it. You can look at the number of cases per day over the number of new deaths per day.

This is now done very commonly. And then when the number of cases gets to a peak, you can predict that the number of deaths

are around a third of the way through. It's a rough estimate, but if you know exactly where the peak is, then it *usually* does work.

Going off of the only numbers that I already had, it basically quite clearly said that inside Hubei, there would be a few thousand deaths, and outside of Hubei in China there would only be a few hundred deaths. And that was enough to give people more confidence in understanding the virus, though I don't think it really prepared the rest of the world for what was going to end up happening.

TSD: How has your outlook changed over the course of the past four months as COVID-19 spreads and new research comes out?

ML: I don't think it really has changed. I have overall been pretty consistent in my opinion. One thing that did change for me was that I used to never use Twitter at all. I thought Twitter was stupid. And then I first used it for COVID-19 towards the end of March when I had just started studying cases in New York City.

A lot of people would see my tweets and actually sent me helpful information, and I was really impressed. It's a great way to get information.

TSD: What do you wish that people had understood at the start of the coronavirus pandemic?

ML: Firstly, one thing that was not publicized in the very beginning, that was actually known, was the age distribution of the deaths.

People who were older had a much higher chance of dying, but the trouble was that, comparatively, there aren't that many old people in China. It's a relatively young country, with a small proportion of the population over the age of 85, whereas in places like Italy, half of the deaths were over 85.

But when this paper came out in the middle of February, no newspapers picked it up and they really should have. They should have said, "Look, this really is a disease that's going to affect old people."

TSD: Is there any policy that you think should have been implemented initially around the world or in the U.S. specifically?

ML: I know one policy that I would have implemented, but it's something no one will talk about.

People live and they die, and it's very sad because we all have people that we've loved who have died and it's terrible, but we know that that's the way the world works.

And it seems to me that dying at 70 isn't the same as dying at the age of 17, no matter how great you think you are and how important you are. The fact is that a 17 year old has, let's say, 60 years of life in front of him, and a 73 year old has maybe five years of life ahead of him.

I saw lots of reports on the amount of deaths from COVID-19 compared to the deaths from the Vietnamese war. Well, maybe the numbers were the same, but the deaths from the Vietnamese war were people in their twenties being sent to defend their country. And it isn't the same thing.

One thing that also I found disturbing was The New York Times ran a front page where they listed the names of the first hundred thousand COVID-19 fatalities. How many of those people died from lots of other reasons? 90% of the people who died from COVID-19 have heart problems, lung problems and other conditions.

During the time that a hundred thousand people died from COVID, another 500,000 people died due to other problems.

They shouldn't be any more celebrated than the 500,000 people. This ended up making people incredibly scared because they were publicizing this instead of telling people that all the deaths of COVID-19 in the whole world are three or four days worth of natural deaths, which is the truth.

But no one was brave enough to discuss it. People didn't want to say that if you were 95, you had heart problems and died of COVID, but it wasn't just a terrible tragedy. It isn't a tragedy.

You have something like 8,000 people who die every day in the U.S. and you don't hear about them. And so this is something which I thought was a mistake. It wasn't making it easy for the policymakers to make decisions based on this information because they would be called the "granny killer." The trouble is that the drop in the economy is going to kill many people as well.

Because when you have poverty, life expectancy goes down. If you're going to take a very moral stand, you can't say these deaths matter; those deaths just don't matter.

TSD: Could you tell me about your mathematical models and how they differ from those of other epidemiologists?

ML: It turns out that when you are looking at a dynamic process, it is actually a very simple equation.

Many epidemiologists said it's because everyone locked down that things have improved, but then Sweden only implemented social distancing without a lockdown and the number of deaths in Sweden are proportionally exactly the same.

You have to look at the data. You have to not make too many assumptions, and you have to learn from the data. I think we just looked at the numbers and the statistics, and it's very simple minded, but it's amazingly powerful.

TSD: What is your overall opinion on the concept of a lockdown and how do you think it should be modified for the U.S.?

ML: I think lockdown is a very crude, medieval-sounding phrase. I think closing schools, closing business and places of work is not such a great idea and causes huge damage to the economy. It's wicked to people in the economy, because if you're a gardener or you own a restaurant, you can't work from home. *(Sweden, which did not lockdown, has still faced economic damage, leading some to challenge the idea that government actions, and not the virus itself, are ultimately responsible for economic fallout.)*

These people have been very badly hit. I think that the retail sector in the United States is not going to recover, which has been a great gift to Amazon.

What you want to do is social distancing because you don't want everyone to get infected at the same time, because that could have a very negative effect on hospitals.

On the other hand, when you look at New York city, where by all accounts, things went completely crazy, they ended up not using up all their hospitals and having ventilators to spare.

It's also very unfair to the younger people and to the disadvantaged people — people have not fully estimated some negative results of the lockdown. Suicides, for example, have increased dramatically in certain locations, along with marital abuse, child abuse and addiction. Tobacco use has increased very substantially, and that is going to end up killing people. If people smoke 5% more, it would result in much more deaths than all the COVID-19 deaths by far.

There are clever ways of distancing, and washing your hands is

a really good idea — wearing a mask is a good idea. There are lots of ways of doing a gentle lockdown or distancing, so I think a lockdown is very, very crude and shouldn't have been used in this century. *(Some experts, however, have said that earlier lockdowns were necessary to change the course of the epidemic in the U.S.)*

I also don't really think it helped. Sweden had exactly the same death rates as many other places. (*Cases in Sweden have declined, though Sweden's death rate has been higher than in other countries, including its Scandinavian neighbors.)* There's a big difference about not being able to leave your house and maybe not shaking hands and it's a very small price to pay to just wear a mask or wash your hands all the time. But it was done by emergency orders and was very political.

Also a lot of people chose not to go to hospitals for regular treatments. So how many cancers were we exacerbating? How many strokes happened? How many children have [been] paralyzed because they have hyperglycemia?

TSD: How do you feel about how politics has gotten involved in handling COVID in the U.S.?

ML: It's been very political, and science can't be political. We're trying to analyze numbers, and I tell people there's no red virus, and there's no blue virus, no Democratic virus, or Republican virus. I think it's been terribly confounded by politics.

Everyone's looking to blame somebody else, and this is a very difficult problem knowing how to make these decisions. You want to control the disease so you don't flood hospitals, but you want people to get infected so they won't get infected again; you don't want people to die, and you don't want to destroy the economy.

I really hope the world learns how to handle crises better. This has not been a well-handled crisis at all.

TSD: What do you think about the spikes in cases in places like Southern California, Texas, Arizona and Florida?

ML: Many people are concerned about these places and the number of cases that are shooting up. The newspapers are saying Florida has record cases, but the truth is that if these cases aren't actually killing people, they're actually very good. If you can get cases without killing people, that's wonderful. And the last thing you should do is lock down because you want people to get infected if they are not dying. *("Herd immunity" is a term for when a large portion of a population becomes immune to a disease, making it harder for the disease to spread. However, according to Mayo Clinic, there are issues with achieving herd immunity through natural infection: It is not yet established that COVID-19 infection makes a person immune to future infection, and a large number of people would need to be infected, which could lead to many deaths.)*

Also, I don't think they're really spikes. I think they didn't have enough infection before. And also I think that they're testing a great deal more than before. *(This does not completely account for the increase in cases; in some states, positivity rates are increasing as well.)* The fact remains that the only thing that really stopped cases naturally was when a community got to about five deaths per a hundred thousand people. If they didn't get to that level, it didn't stop.

TSD: What do you predict to happen in the coming months regarding COVID-19 in the U.S.?

ML: I think it's going to end up with less deaths than what I thought. In March, I thought there would be a total of 220,000,

but there will be less than that. Right now it is around 155,000 in the U.S., and I am expecting it to end up under 170,000 or maybe 175,000.

Hospitals and doctors are getting much better at handling patients. They are learning how to use ventilators better and have learned what is best for COVID-19 patients, resulting in fewer deaths. My feeling is that it really is going to be gone on this side of 2020.

I think that when we come to look back, we're going to say that wasn't such a terrible disease. The deaths accounted for maybe one or two months of deaths normally, but the effect on the economy will be devastating, particularly for young people. This should be a wake up call to young people to realize that it's your world; the future belongs to you, and it is time [to decide] what is important for you.

This transcription has been condensed and lightly edited for clarity.

A previous version of the article misquoted Levitt as saying "debts" instead of "deaths" in one instance, and in another omitted "outside of Hubei" in Levitt's response about the number of deaths he predicted. The Daily regrets these errors.

The article has also been updated to include more contextual information about the cause of pandemic-related economic damage, as well as information about the usefulness of lockdowns, and to clarify the phenomenon of herd immunity. The parenthetical notes in this article have also been adapted, to use links instead of notes in some instances, and to remove extraneous material.

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