

Actuaries Institute Podcast

Title: The role of actuaries in crunching COVID-19 numbers

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Interviewer: Shannon Lin

Speakers: Dr. Achim Regenauer

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Introduction

Shannon:

Hello, and welcome to another episode of the Actuaries Institute podcast. My name is Shannon Lin, and I'm a member of the Institute's Asia Subcommittee. Today I'm joined by Dr. Achim Regenauer, who's the Global Chief Medical Officer for PartnerRe, and is joining us all the way from Germany. In this podcast, we will draw up on Dr. Achim's world-leading medical knowledge to discuss the far-reaching impacts of COVID-19, and the variety of roles which actuaries can play in unearthing the unknown numbers of the pandemic. Welcome, Achim. Maybe you could start by telling how are things in Germany now?

Achim: Yeah, hi Shannon. Germany, it's quite relaxed, the situation. We have had a longer phase of around six weeks of self-lockdown, and now a gradual easing. The reproductive number is far below one. Now the controversial discussions in a democracy starting about being entitled to refuse a vaccination, even if don't have yet a vaccine, et cetera, et cetera. Typical for a democracy.

Shannon: **So, can you give us an overview of the current status, and what PartnerRe is monitoring closely?**

Achim: Yeah, we as PartnerRe, we have set up a task force where we monitor and analyze the development, both in the medical and epidemiological area. And the task force consists of actuaries, data scientists, other experts and physicians as well. And one of our major challenges is to set up new underwriting guidelines, to take into account the most recent development in terms of product development, and modeling what's going on during the next three to six or 12 months.

The situation worldwide is that we are currently phasing or seeing a phase of easing restrictions, with encouraging low numbers of new confirmed COVID-19 cases. Of course, it's far

too early to give a prediction already whether we have been successful or not, but we would just discuss later, I think. What is very concerning are the 'giants', the nations with a three-digit number of inhabitants, like Brazil, Russia, India, also Mexico, we see an explosion of new COVID-19 cases. And even in the so-called hotspots, be it in Europe, be it in other parts in Asia, the infection rate of the population is very, very low if you believe the first antibody test, the infectivity rate of COVID-19 is around 3-5% on average. So, it's far away from herd immunity, and it clearly tells us that we are in a very early phase of this pandemic.

Shannon: **And with the unknown numbers of COVID-19, it is a difficult question I guess, how big is the unknown? And what do actuaries need to be aware of when looking at the data?**

Achim: Yeah, that's a good question, very good question, a challenging question where many experts have not yet reached an agreement. And to summarize the range of opinions, of educated guess, one can say that the unknown number is around plus 100% until plus 400-500%. Which means that for every confirmed COVID-19 case, you can add another one to five. We refer here to studies which we have seen in Iceland, for instance, where 6% of the population have been tested, and it turned out that the unknown number is around 90%.

Another study comes from Wuhan, in China, which tells us it's around 86% as an additional plus. And a last study, which was conducted in a county in Germany, told us that the number was fivefold higher. You should know that in Germany, we have a high penetration of this COVID-19 test, so this was a surprisingly high number.

Shannon: **I guess the more you test, the more cases you'll find. But indeed, that's a very big range.**

Achim: I'm pretty confident that, let's say within the next two months, we will know much more, because then we have this so-called antibody test, or serological test on a large scale available. And once parts of the population which are preventative for the entire population in a given country have been contacted, the so-called serological surveys, we know exactly whether it's plus 75, plus 100, or even plus 400.

Shannon: **I think it sounds like in the next few years, a lot of resource will be dedicated to COVID-19, and implication. You know, how much testing we want to do, versus the amount of effort we want to put vaccines in practice. But that alone itself, I cannot imagine. So, for people who**

has recovered from COVID-19, are there any long-term sequels? I guess in a complex of critical illness, we are particularly interested in.

Achim: Yeah, as PartnerRe in Asia, critical illness business for us is key, is essential. And we invest a lot of research in finding out whether they are really long-term sequels. Of course, we cannot predict the future, because this disease is only known now for six months. So, what's about long-term sequel, if there are no long-term records available, because this disease is so new. But what we learn right now is that COVID-19 is not just an infectious disease but can produce complications in the medium and long term, most likely. So, this does not apply to anybody who is infected, or who has contracted SARS-CoV-2, but mostly those who suffered from a severe of COVID-19. So, what is a severe form of COVID-19? By and large, you can say all these patients who have been infected with COVID, or SARS-CoV-2, and who have been admitted to a hospital and then to an intensive care unit, you can call them severe COVID-19 cases.

Achim: And out of these severe COVID-19 cases, mostly based on Asian, let's just say Chinese figures, but also a few now in Europe and in the US, we see that around three to six percent suffer from a stroke. Around 20% suffer from a cardiac injury, mostly a heart attack. 10-15% suffer from a lung pulmonary embolism. 13-14% of acute kidney injury. And 20-30% to chronic lung disease, as it is closed a restrictive lung fibrosis, meaning or leading to a restrictive lung function, and difficult to breathe regularly in a normal volume.

Shannon: Just want to confirm, those numbers you have given, those are people who has been admitted to ICU?

Achim: To the intensive care unit, yeah. Not those who have been admitted to the hospital. We call them moderate, or modest form. And those who have never been to a hospital are mild forms.

Shannon: Is there any particular demographic characteristic? Do they usually have like say a preexisting condition?

Achim: Most people are older than 65 years. More than 90%. And they have at least one comorbidity. You should remember that in this age, that's to say 65 years and older, most people have already a chronic comorbidity. Whether it's a predisposition, or whether it's a concomitant phenomenon, we don't know. But that's not that relevant.

Shannon:

The next question actually caused some disturbance in the media. The role of super-spreaders. Can you firstly define what that means? And in your opinion, what do you think their roles should be?

Achim: A super-spreader are highly contagious infected persons, which are capable of transmitting to an unusual large number, their microbes, that's to say SARS-CoV-2, to other people. And we have seen this in, for instance in South Korea, in Daegu. I think there have been members of a religious group, and the preacher, or the first ... the chairman traveled around in South Korea, and infected thousands of Koreans. We see it also here in Europe. A soccer game in Italy, where a Spanish, and ... a Spanish against the Italian club in a Champion's League played against each other, you have seen the effect both in Italy and Spain. In New Orleans, in the United States, is have been the Carnival. So, this is really a huge kick-up in a given country. And it does not mean that the entire country is homogeneous infected. It takes months until this condition has been reached. But it explains the hotspots.

Shannon: You know, all the cases you mentioned, you know, religion, sport, cultural events ... those are really, really hard to regulate.

Achim: Just by banning mass gatherings. I think we have to live with that until we get a vaccine. That's the most efficient measure by a public authority.

Shannon: Given many countries are opening up now. But many countries are very, very reluctant, because the chance of facing a second wave. What's your view on that? Where do you think that would happen? And do you have any comment on its likelihood in Asia, and in Australia?

Achim: I think we have, first, to define a second wave. The current condition, if we look at Singapore, if we look at South Korea, or even China, it's like living on a tinderbox. Because once you ease and relax the alertness and the vigilance, you will face regional outbreaks. And if you don't confine them, then you have already a second wave. But what usually is called a second wave, is something we know from previous pandemics. And we can trace them back to the beginning of the 18th Century. And mostly these have been, or if not all, have been influenza pandemics.

Achim: And every ... any of these pandemics had a second wave. And it was also more or less a natural law that the second wave was

worse than the first one. So, coming back to your question, yes, it is likely. It may be even very likely. And it would start at least on the Northern Hemisphere, around end of October, when usually the season of common colds and influenza starts. This time, that's to say in 2020, it will be combined in some patients, or on a general level, also with COVID-19, posing the healthcare systems really to a huge challenge. But we had already the opportunity to grow with that, with this challenge, because we could practice these challenges during the spring season.

Shannon:

I see. Okay, thank you, Dr. Achim. That's all we have time for today. Listeners, we hope you enjoyed this discussion. Check out our Actuaries Institute podcast for in-depth discussions. Write in with your question and comment on the show. We love to hear from you. And thank you very, very much again for joining the podcast today, Dr. Achim Regenauer.

Achim:

I thank you, too.

Shannon:

Thank you. I'm Shannon Lin. Bye for now.