LSHTM Viral
S1E1: Tracking the new coronavirus
January 30, 2020

0:02 [Amy Thomas, host]

Hello and welcome to LSHTM viral, a new podcast from the London School of Hygiene and Tropical Medicine. Our knowledge on the novel coronavirus is evolving every day. We're here to bring you the latest evidence on spread control and safety of the virus directly from our experts.

0:19 [Naomi Stewart, interviewer]

Coronavirus is our family of viruses that include the common cold but also more severe diseases like the SARS outbreak in 2003, and MERS, which first appeared in Jordan in 2012. coronaviruses can cause respiratory issues coughing, shortness of breath, fever, and in severe cases pneumonia, kidney failure and dust. The origin of the current outbreak started in a seafood market in Wuhan and was first reported to the WHO on December 31. It is a new strain of coronavirus, which has never been identified in humans before jumping from a yet unidentified animal species in the market to humans. As of January 30 2020, Chinese officials confirmed coronavirus in all regions of China, with 7711 cases confirmed and 170 deaths. The Philippines and India announced today they have confirmed cases of coronavirus, bringing the total countries outside China with coronavirus to 21, while Australia has made plans to quarantine citizens on remote islands. Meanwhile, British Airways suspended all direct flights to and from Mainland China, with a total of 16 airlines cancelling flights. As the coronavirus outbreak continues. Today's guest is Professor john Edmonds, a leading infectious disease expert here at LSHTM who was awarded an OBE for his work doing real time analysis and modelling during the Ebola crisis in West Africa, from 2014 to 2016. Welcome, John. So tomorrow will mark a month since the coronavirus was first declared and what's your expert view on where we are now with that?

1:59 [John Edmunds, interviewee]

Okay, so a month ago when we first started to hear about these cases, then they were all linked to the seafood market in Wuhan we've had, and it could have been that this was going to go away, that it was just this, what's known as a point source outbreak, that individuals who were exposed to the virus in that seafood market and maybe a few that may be close contacts might have been infected but no more than that. Clearly now a month later, we know that isn't the case. And the virus can transmit quite efficiently between individuals and has spread in Wuhan probably quite extensively, and also from Wuhan to other Chinese cities and from there and from outside into other countries around the world.

2:47 [Naomi Stewart, interviewer]

And the mathematical modelling team here LSHTM has just released their first preliminary estimates of the transmission and control of coronavirus. So how important is this type of work during the early stages of an outbreak?

3:01 [John Edmunds, interviewee]

Well, in an outbreak situation, especially with a novel virus we don't know much about. Clearly, first thing we need to know is trying to characterise the disease itself, see how transmissible it is, and then look to see, well what might happen, look at sort of scenarios. How might it spread around the world? How quickly mighty get here, are there any things

that we can do to try and limit our exposure in any way. So models can be useful for that, because what models do is they combine some data with some with what we think might, you know, an underlying model and what we think might happen or assumptions, and then that can give us some insight into, you know, possible scenarios. So, for public health, you know, decision making there can be quite useful,

4:01 [Naomi Stewart, interviewer]

And so who's actually in using this data? So the things you've produced for coronavirus now, who will then look at that and turn that into some sort of decision.

4:09 [John Edmunds, interviewee]

So at the moment, there's sort of a number of different groups of modellers. So there's a number of modellers and modelling groups here in the UK, but around the world, and we're all kind of working on different aspects and feeding into different groups. So WHO are obviously keen to understand what might happen both in China but also internationally. Here in the UK, there are certain decision making bodies, that would have to make recommendations to government about control policy, for instance, whether we should be have airport screening and those sorts of things. And so, those are those are modelling work goes to inform those decisions.

4:56 [Naomi Stewart, interviewer]

Okay, and as you learned from your experiences with a Ebola, data and information sharing is crucial to the outbreak response. And you've mentioned that you've just got some data on incubation periods that have come out of China. So can you walk us through how that impacts your modelling to get that kind of data?

5:14 [John Edmunds, interviewee]

Yeah, so some data has come out of China quite quickly, and others as has been much slower. We've now had some data from China. So we just published a paper today, which, amongst other things, has data on the incubation period, and that's really important. So that's that's the time between getting first exposed and getting and then becoming ill. And that's important because if we are bringing people back home, from Wuhan for instance, and that's happening at the moment, and individuals are being asked to isolate themselves for two weeks, so that if they are in incubating the disease, they have already been exposed in Wuhan over that period, it will become apparent that they were incubating, so they than won't then transmitted to other people. But perhaps two weeks is too long. So we saw that from the data that's come out from China, the main incubation period is about five to seven days. And so maybe keeping people isolated for two weeks is a bit over the top.

6:26 [Naomi Stewart, interviewer]

And going forward, what kind of information will be key to making your models more effective and understanding how the virus is spreading?

6:34 [John Edmunds, interviewee]

Yeah, models are a combination between assumptions and data. And what you want to really do is downplay the assumptions and apply the importance of the data. So as more data become available, and when we can fit our models to those data, the importance of our initial assumptions should become less.

6:55 [Naomi Stewart, interviewer]

As we've mentioned, you and your team are heavily involved in the Ebola response efforts. And so you're familiar with risk. So how concerned do you think people should be about the coronavirus outbreak? And how concerned are you about the outbreak?

7:08 [John Edmunds, interviewee]

There's two things with risk. One is the probability of it happening. And the other one is the consequences when it does happen. I think the probability of coronavirus coming to the UK and spreading widely in the UK is very high. I think that there's very little chance that it's not going to spread around not just the UK but everywhere in the coming months. The consequences, we don't know yet. So how severe is this disease? We don't know. There have been about 100 deaths, I think, reported from China. But we don't know how many cases there have been. There's probably been many, many thousands of cases. And so exactly how pathogenic it is, we don't know. We know that the deaths so far that have been reported have been tended to be elderly and frail individuals, you know, so that's something we can perhaps do something about that, try and make sure that they are protected in some way or if we do get vaccines later, then perhaps those are an obvious target group. So the more information we get, you know, from China or from elsewhere, then we'll be able to revise our estimates. But yeah, we at the moment, we don't know how pathogenic this is.

8:28 [Naomi Stewart, interviewer]

Thank you John. For those of you interested in a career helping to tackle disease outbreaks, john also teaches here at LS HTM on modelling the transmission dynamics and control of infectious diseases.

8:40 [Amy Thomas, host]

For more information, please visit our website lshtm.ac.uk. And stay tuned for our next episode, continuing to explore the science behind the coronavirus outbreak with our experts here at LSHTM. Remember to subscribe to LSHTM Viral, and thanks for listening,