
Ole Jann: Successful smart quarantine the first step back to normal life

CERGE-EI's Ole Jann: Successful smart quarantine the first step back to normal life

As the coronavirus continues to strangle the world in its grip – badly hitting economies and claiming lives across the globe, it has grown apparent that an important tool is the introduction of smart quarantines: tracing the movement of infected individuals (and persons they have interacted with) to free up at least some sectors in society. The potential impact in helping loosen the grip is examined in a new study by economist Ole Jann, published by CERGE-EI.



On the phone I asked Dr. Jann about how smart tracing was used recently in Asia and how it is expected to help in the Czech Republic, where a pilot project in South Moravia will be extended to Prague and the rest of the country.

Why have South Korea and Singapore largely been success stories in reining in the local spread of COVID-19?

Both learned from the experience of narrowly avoiding catastrophe several times in the past: there was the SARS epidemic in 2002-2004, and later, MERS. They looked at how close they had come to catastrophe and began planning. That meant building infrastructure, organising training exercises, and preparing testing kits. In Europe, we were maybe more complacent: these were problems that just seemed “far away” and there just wasn’t as much preparation here. What they did – and did early on - was to test a lot. In South Korea, they were able to test tens of thousands of tests per day. In most cases, the results were negative but of course in other cases they learned that many infected people were asymptomatic and that was a very useful result.

How important a role did the smart quarantines play there?

This is something else they implemented very quickly. When we talk about contact tracing that is something that all countries already do to an extent, but with different degrees of success. The big difference was that South Korea and Singapore were very diligent in testing and very carefully followed the chain: when someone tested positive they were very careful to follow up on all others who were in the chain. In Europe, until now, we put the main contacts in quarantine, but it often stopped there. We didn't follow others on the chain diligently. Because this illness can be largely asymptomatic in many cases, that has a negative effect.

What kind of data was monitored?

In South Korea, they used many different sources: medical histories and histories of recent doctor's visits. Then, they tracked cell phones (usually with consent even though the legal situation suggests they can do so without a warrant). They traced credit card transactions (which is very useful in a society where everyone pays by card) and they used CCTV cameras to check where people had been. They also used data from apps. Apps tailored for monitoring, which can be used very quickly, are an asset while data from cameras is far harder to gather and verify.

Is that, potentially, the weakest link in smart tracing or a smart quarantine? If people don't tell the truth?

If people don't cooperate, that can hurt these efforts significantly. There are different reasons why they might not be helping: someone might shrug off only mild symptoms and not report them. And that can lead to the downfall of the system: the whole idea is that people take part and want to help. We can talk about incentives to cooperate but above all people should not have any reason NOT to cooperate.



By that, you mean guaranteeing that the information will remain private, not be passed on and not be accessed by other state institutions, where the risk of abuse would exist...

The information absolutely needs to be protected, to be kept secret from everybody else, there needs to be a clear outline when the data will be destroyed and people need to know for what purposes it will be used. And it needs to be separate from all other state purposes. What I think makes sense there is to build a really separate infrastructure because that will both reassure people and also make it physically very hard for the state to abuse that data. It is also something that can be torn down easily and removed once the crisis has passed. The only other state records you need are addresses because obviously if someone has been infected, you need to find those people. But you don't need the data to otherwise be cross-referenced.

Currently, what we have seen in the Czech Republic are blanket restrictions, requiring people to stay home, to work from home if they can, to keep children out of schools, and closing almost all businesses and a great deal of commercial activity, to flatten the curve ie. spread of the virus. But that hurts the economy and also puts pressure on people.

Yes, it's effectively a "dumb" quarantine because we have to treat everyone as if they were infected: everyone has to wear masks, stay at home and avoid meeting others including older family members. But as we learn who is likely to be infected, to be part of the chain, that means we can free up other parts of society and economic activity.

In the Czech Republic, I imagine that people might be wary about being so closely monitored - even during such a crisis...

There are cultural differences and there are different approaches to community and the individual's role in community, but another reason is that the Czechs have a very recent history of state surveillance and the state invading peoples' private lives and using what it finds against them. In South Korea, they don't have that kind of experience and also they have more community enforcement, more enforcement of the rules. All of these things matter a lot.

To come back to South Korea, how well did their smart quarantine work? Were there blind spots? And did they plan for the data not being complete?

I think they did and it's the only reasonable thing to do: there are going to be contacts you miss. You can't catch every case. Not everyone will be forthcoming, things will be overlooked; also, an infection is a stochastic thing and it is a question of probability: we can't say for sure even if you met someone for an hour who has it that for sure you will get it or that you will not get it if you met for only two minutes. The goal is to make the system as reliable as possible and if something does pop up that we didn't expect, to follow up very quickly. Find the initial contact, then contacts of contacts, and test them.

How great an impact can a single missed contact have?

It can be enormous. In South Korea, they reacted so quickly and looked at so many people travelling from China, they had the epidemic pretty much under control for the first 30 patients. But then came the famous patient number 31, who continued to participate in daily life, did not follow the measures, did not tell anyone although she had the symptoms, went to church and was in close contact with others and infected up to 1,000 other people. They infected still more people and then it became very difficult to get back under control. That's why South Korea, instead of having cases in the hundreds, has around 10 thousand.

And of course we see how serious the situation has become...

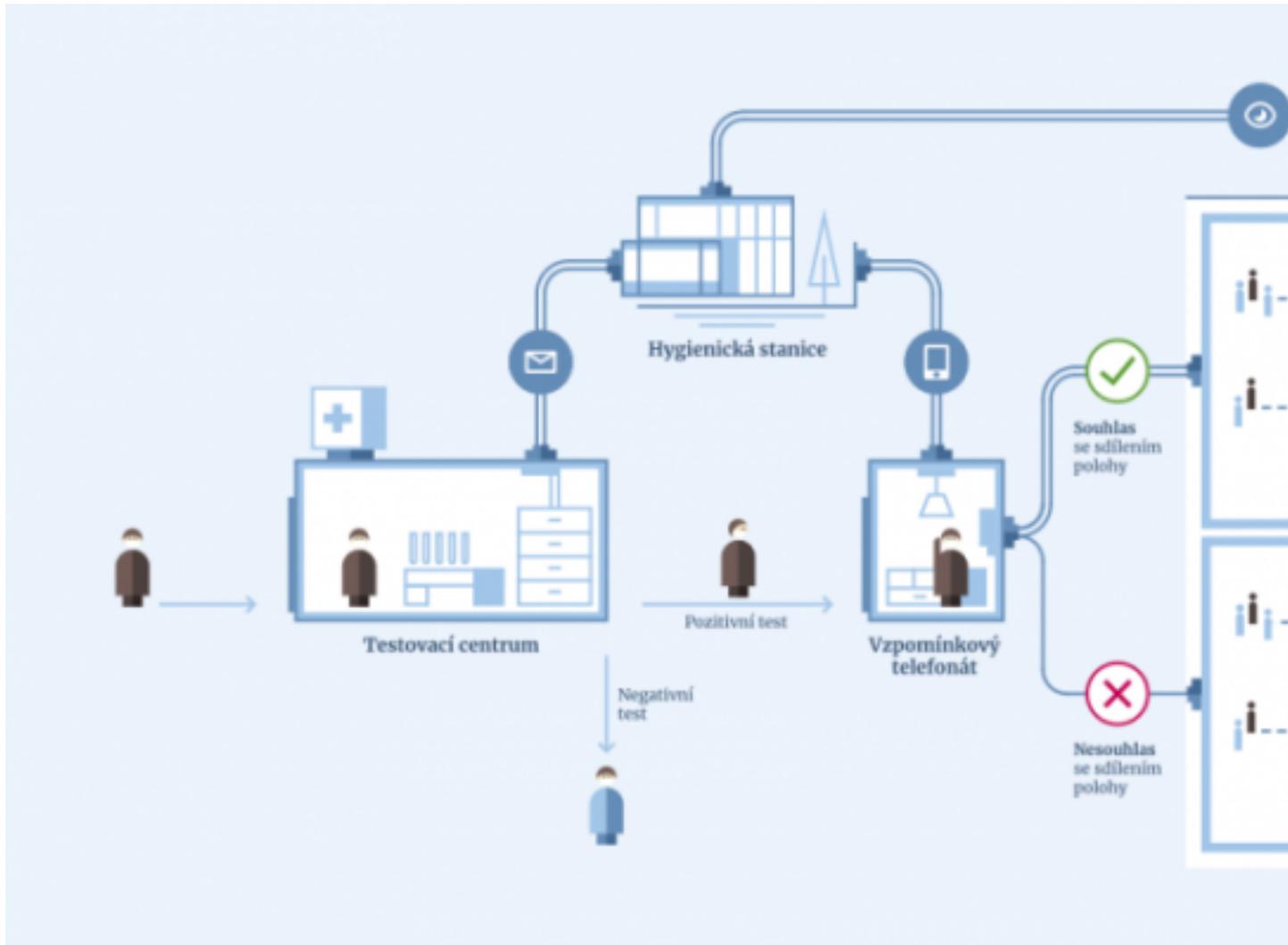
I think most people are taking it seriously now. The number of deaths has risen and the strictness of the measures by the government sends a message. We also see what is going on in other countries. One snag is that, if you are successful, it will never become fully apparent how serious the situation was. If you look at the past cases, SARS or the swine flu, governments did react and did so quickly and effectively. In the case of SARS, SARS had a mortality rate of 10 percent: if that had broken out uncontrollably, there would be fewer people living in the Czech Republic and elsewhere now. The paradox is that if contact tracing is successful here, it may never be apparent from the numbers how serious the situation really was.

Many people are rediscovering or learning about Bill Gates' now famous [Ted Talk](#) from 2015 where he warned exactly of the danger of microbes and that the next crisis the world faced would be a pandemic. Many steps are now being implanted to try and curb the spread but given how many countries were caught off guard, do you think we will be better prepared next time, if and when COVID-19 is in the rearview mirror?

We never learn the lesson completely, even looking back. There will be lots of differences between what happened here, what happened in Germany and what happened in the US. There will be different analysis and various explanations and factors, such as the age of the population and so on. Of course, we will learn from COVID-19 but what we learn may not be applicable next time. We started out by talking about South Korea and Singapore: they were very lucky in the sense that the kind of outbreak they prepared for was similar to SARS or MERS. But the next such pandemic or epidemic might well be very different. The lessons might not be as useful or could even lead us down the wrong path. You have to do more than just learn from what happened but have to simulate or try to anticipate the next kind of threat.

I suppose a super flu was the biggest hypothetical worry until now (not that COVID-19 isn't bad enough)...

Sure, or if you take the 2015 Ebola outbreak. With Ebola people have symptoms and succumb very quickly, meaning they can't infect as many people. But imagine something as dangerous as Ebola which would be asymptomatic - that would be very hard to control.



To come back to the tracing of COVID-19 in the Czech Republic, where are we now?

The smart quarantine headed up by Deputy Health Minister Roman Prymula as I understand it is as close to what South Korea as possible while being adapted to the Czech context. The plan is to roll this out everywhere, as it seems to be a more precise instrument that can allow life to normal as much as possible; there will still be rules to follow and social distancing and so on, but at least it will be something more recognisable.

Your paper mentions very clearly that we get one shot at this – why is that?

The rules and procedures have to be well-designed and clear and have to dissuade people from being clever about the rules and trying to trick the system. For example, someone may try to be clever to shorten their quarantine and so on. There is a bit of a culture sometimes about being clever with rules and some people take pride in getting around them, from labour to tax laws. In the case of tracing, that would be very detrimental and could be catastrophic and then the only solution is to reintroduce blunt rules for everyone. And as we talked about, someone who is having an extramarital affair, or someone dodging taxes (not declaring taxes) or someone who goes to a brothel, needs absolute assurance that no one is interested in that information or will pass it on. The only thing that is needed is to trace the route of infection.

Step-by-step, with a successful smart system, sectors of the economy may reopen, albeit with safety measures in place. Even restaurants will eventually reopen for customers on site...

Once things are allowed to re-open I think people will still be careful. One thing that we have seen, with the sewing of face masks and other grassroots projects that have emerged, I think we will see many kinds of small but clever solutions people come up with to help, the Czechs are very good at that.

SARS was earlier, MERS and other threats as well: are we better placed in terms of technology now, when it comes to countering COVID-19?

When it comes to technology, it's much easier for scientists to communicate and share information these days than in the past. The technology helps in fighting the pandemic but perhaps it helps more now with how we can stay at home. That's the biggest difference: 15 years ago it would not have been possible for so many of us to work from home as we do now. The bigger effect is on our daily lives. Imagine having this kind of quarantine without facebook, skype, or Netflix. Just being at home all the time, alone or with the family, would have been much more hell than it is now (laughs).



That's a line that stuck in my head from Dr. Emily Landon at her press conference in the US when she said "It's really hard to feel like you're saving the world when you're watching Netflix from your couch."

(laughs) Yes, but that in a way is what is expected from many of us. We don't have to fight in the trenches but for the moment we do have to sit on the sofa and stay at home.

Ole Jann is assistant professor of economics at CERGE-EI, a joint workplace of Charles University and the Czech Academy of Sciences. He was previously prize postdoctoral research fellow at the University of Oxford. He studied economics in Berlin and Copenhagen and he received his PhD from the University of Copenhagen. He is principal investigator of the Charles University PRIMUS project 'Information Revelation and Privacy in the Information Age'.

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