

Want to know how many people have the coronavirus?

The Freeman · 15 May 2020 · 12

What percentage of Filipinos are, or have been, infected with the coronavirus? And, what is the probability of dying from the virus if you catch it? One of the most unsettling aspects of the COVID-19 pandemic is that these two fundamental rates – the coronavirus infection rate and the case fatality rate – are not known.

I have asked the question before: why are we not using the same approach that is used for political polling?

Given infinite resources, the simplest way to find out how many Filipinos have the virus and what risk it poses would be to test every person in the Philippines. But there are not infinite resources, and testing for the coronavirus has been very selective.

Because of this selective testing, epidemiologists and public health officials simply do not know the true extent of the coronavirus's penetration into the country – that is, the virus's infection rate. And without knowing how many people have been infected, the case fatality rate – the probability of dying from the virus if you catch it – and many other statistics associated with the coronavirus are impossible to calculate. Fortunately, there is a straightforward way to learn how widespread and deadly COVID-19 really is: Test randomly.

So why isn't it possible to calculate the coronavirus's infection and case fatality rates from the millions or thousands (???) of COVID-19 tests that have already been performed in the Philippines? The problem lies not in the number of tests but rather in who has been tested. Testing symptomatic patients reflects a classic error in sampling. Researchers want to know who has coronavirus, but since most of those tested have symptoms, medical professionals have been sampling from a group with higher rates of infection than you'd expect in the population as a whole. People with symptoms of COVID-19 are more likely to have COVID-19 than a person chosen at random!

The reasons for this selective testing are completely understandable. When testing is a scarce resource, people with COVID-19 symptoms should get tested so that proper treatments can be offered and contact tracing can begin. Additionally, time and numbers of health workers are both limited, and it is convenient to test people who show up at hospitals and doctor's offices requesting to be tested. But people who show up at health facilities are more likely to be symptomatic and have COVID-19 in the first place.

The people tested for the coronavirus are not a good representation of the Philippine population at large. Therefore, the rate of infection and case fatality rate in this group do not represent the larger Philippine population. Random testing is representative testing. The ability to test the entire population for the coronavirus may be a long way off, but it isn't necessary to test everyone in the Philippines to get accurate numbers. By testing a large enough number of people randomly, it is possible to get a sample group whose demographics are representative of the whole country. This is exactly how surveys and polls are done!

Public health officials could start randomly picking people from across the Philippines, testing them for the presence of the coronavirus, and then following up to see what fraction of those who tested positive for the coronavirus died from COVID-19. If random testing is done right, the infection and case fatality rates in the random sample should be very close to the actual rates in the whole Philippine population.

Do random test with the involvement of market research companies!

The results of the representative tests - together with the periodic repetitions of the course of these results - would be a fairly reliable basis for action regarding the social and economic restrictions to be met.

Conclusion: Random tests could lead to more deliberate political action.

I would love to get feedback on this suggestion; email me at Schumacher@eitsc.com