

To: [redacted]@rivm.nl; [redacted]@vggm.nl; [redacted]@vggm.nl; [redacted] (GGD)
 [redacted]@ggd.groningen.nl; [redacted]@ggd.groningen.nl;
 [redacted]@ggdhn.nl; [redacted]@ggdhn.nl; [redacted]@ggdzhz.nl;
 [redacted]@ggdhvb.nl; [redacted]@ggdhvb.nl; [redacted]@vggm.nl; [redacted]@ggdru.nl

From: [redacted]

Sent: Mon 3/23/2020 9:42:34 AM

Subject: FW: Verspreiding voor symptomen

Received: Mon 3/23/2020 9:42:41 AM

Van: [redacted] <[redacted]@ggdzt.nl>

Verzonden: zondag 22 maart 2020 19:17

Aan: [redacted] <[redacted]@ggdzt.nl>; [redacted] <[redacted]@ggdzt.nl>; [redacted] <[redacted]@ggdzt.nl>

Onderwerp: Verspreiding voor symptomen

Ook onderstaande update suggereert op basis van generatie interval en serial interval op basis van data uit Azië dat forse transmissie voor symptomen waarschijnlijk is

Update on COVID-19: part 15, keep a distance



2 weeks ago

Advertisements

In my country we stopped shaking hands, because of SARS CoV-2, and in a large region people are asked to work at home. Is that justifiable, in light of the evolving pandemic? The answer is YES, according to two publications that appeared yesterday.

Implementing control measures makes more sense when informed by solid epidemiological analyses. What we – optimally – need to know:

- The reproduction number, R_0 , (average number of infections caused by an infectious individual);
- The generation interval, GI, (time between infection events in an infector-infectee pair);
- The serial interval, SI, (time between symptom onsets in an infector-infectee pair);
- The incubation period (time between moment of infection and symptom onset).

I guess you're now familiar with the concepts of R_0 and incubation time. The less well-known are the generation interval and serial interval. The difference: the GI is about when the infection occurs, the SI is when we notice the infection, through symptoms.

Using detailed data from infected and to-be-infected persons in Singapore and China (and some “way-over-my-head maths”) [these guys](#) derived very similar GI and SI estimates, yet the variance in the estimates was much higher for the SI than for the GI (see Table). This means that the timing of symptom onset is much more diverse than of true infection. Actually, the SI can be negative.



Wait a minute: that implies that we have symptoms before infection?

That is of course impossible. And this implies that the assumptions about who infected who were wrong in some pairs; the virus didn't go from A to B, but the other way. And this then implies that transmission happened before symptoms occurred.

They subsequently estimated that between 48-77% of transmissions had occurred before symptom onset. The “good news” is that if these SI and GI estimates are used to calculate R_0 that value is lower than

previous estimates (1.17-1.59).

Some may think, I don't trust maths, show me the virology data. Then look [here](#), also published yesterday. Detailed virology from 9 patients in Germany. "Pharyngeal virus shedding was very high during the first week of symptoms (peak at day 4). Infectious virus was readily isolated from throat- and lung-derived samples, but not from stool samples. Blood and urine never yielded virus. Active replication in the throat was confirmed. Shedding of viral RNA from sputum outlasted the end of symptoms. Seroconversion occurred after 6-12 days, but was not followed by a rapid decline of viral loads." The authors concluded that COVID-19 can present as a mild upper respiratory tract illness.

Both studies, yet not officially peer reviewed, point in the same direction. One that has major consequences for infection control in the community: identifying carriers upon symptoms and isolating them may not control spread, as a lot of transmission may happen before symptoms are recognized. General measures limiting transmission in the whole population (as done in China and other countries) are more likely to be successful. This is why SARS (2003) was relatively easy to contain by isolating patients with symptoms, despite an R_0 of 3; there was hardly any (or no) transmission before symptoms.

So, yes these interventions make sense. We now have to see whether they are sufficient in Europe.

Verstuurd vanaf mijn iPhone