

Wrong Numbers and Formulas Locked Denmark Down

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<http://mathecademy.net/corona-infection-model/>

Abstract: ● The so-called corona crisis is really a corona scandal created by the inability of the authorities to use reliable numbers and formulas. With reliable hospitalization data, the two infection formulas clearly say: do not lockdown, do not exceed, simply balance meeting in space and time. Therefore, everything should reopen, except activities with unbalanced interaction. Then herd immunity will make the virus disappear after three months. If not, the virus will be an occupant for years to come, which will mean a permanent curfew for seniors. ●

First, Christmas travelers brought it home from China. Propagated in the alpine ski resorts, the coronavirus continued to the rest of Europe, having brought Italy to its knees.

The Danish Government wanted to avoid Italian conditions with a lack of respirators. Therefore, we had to move from the red to the green curve by shutting down, because spacing is the most effective way to slow down the infection. This is what the calculation advice of the State Serum Institute sounded like. If several calculation bids had been obtained, MATHeCADEMY.net would have submitted the following advice.

Infection obeys two formulas that tell how quickly it is disseminated and decreases.

The first infection formula is a three-factor formula that can easily be found on Google. It shows how the infection is doubled by three factors: impurity, and size and time of interaction.

Doubling formulas are known from the driving test, where the braking distance is quadrupled at double speed and reduced to one quarter at half speed.

Similarly, the basic reproduction number is eightfold by doubling the three factors and reduced to one eighth by a halving.

The Alps' après-ski is an example of how the three-factor formula creates super-super-super-spread, when three ten folds produce a thousand-fold of the basic reproduction number, so everyone becomes infected.

Fortunately, Denmark can avoid Italian conditions until we get our own super-super-super-spread during summer festivals.

Until then, we can keep the basic reproduction number constant with balanced changes, e.g. by maintaining normal hygiene and at the same time balancing the interaction in terms of size and time, i.e. half meeting time at double group size, and conversely. Then the infection will subside until the population has achieved herd immunity by 60% infected according to formula 160 in the Danish high school's formula collection.

Formulas need numbers, preferably reliable hospitalization numbers to avoid a 'garbage in, garbage out' situation. So we avoid the numbers of infected that are unreliable since only a fraction of those infected falls ill, only a fraction of whom are hospitalized.

The Danish Health Authority website sst.dk shows that the number of hospitalized increased by about 50% per day in the first part of March. However, these first numbers come from people infected in the Alps.

Later, then, figures come from people who are infected in Denmark, where the basic reproduction is significantly less. So, in the latter part of March, growth is likely to fall to around 20% (which also turned out to be the case). Among those hospitalized, one in five people needs a respirator.

The calculation model, therefore has scenarios for both 50% and 20%.

In the first scenario, a maximum of 759 respirators are needed at the end of March, and the herd immunity occurs half a month later. In the second scenario, a maximum of 394 respirators are needed in mid-April, and herd immunity occurs here a month later.

Both curves are below the Danish Health Authority's limit of 1000 respirators. Consequently, there is no corona crisis in Denmark as long as we maintain normal hygiene and balance our interaction.

Nevertheless, on March 11, the Government declared a partial lockdown based on the unreliable infection numbers.

The Prime Minister thus said: " When we were here yesterday, there were 157 Danes infected with corona. Today we have 514 Danes who are infected. The number is more than a ten-fold increase since Monday when the number was 35."

At the same time, the rolling screen text showed that the number was 262 instead of 157. And, growing from 35 to 514 represents a 15-fold increase, where the corresponding rise in the number of hospitalized was just 2.3-fold.

The minister continued: "Coronavirus is spreading extremely fast, Italy is shut down. Hospitals lack respirators and personnel. I would like to stress that this is not a scare scenario. We must avoid too many Danes becoming infected at once, as has happened in Italy."

But comparing Denmark with Italy is a scare scenario, as the super-super-super-spread of the Alps does not occur in Denmark until during the summer festivals.

The minister continued: "Everyone must now be aware of the seriousness of the situation. The health professional analysis is that there is one thing that works against the infection, and that is that we humans keep our distance from each other."

Instead, the minister could have said: "The calculation professional analysis shows that there are three things that work against the infection: that we maintain hygiene, and that we do not get too close for too long. So, we will still stand together, but now with clean hands, and not too many and not for too long. Therefore, there will be no festivals this summer."

And instead of declaring lockdown, the minister could have said: " We can see that the number of hospitalized has increased by 50% per day in the period from March 1. This high number is likely to come from people who have been exposed to super-super-super-spread at après-skiing in the Alps, where all three infection factors have worked simultaneously: many have been very close together for a very long time under not entirely hygienic conditions. We therefore expect to come down to 20% from next week which will put less strain on hospitals. However, both scenarios remain within the capacity of hospitals, as the Minister of Health will now demonstrate."

The Minister of Health said: "Our numbers have increased in recent days in a way that Denmark now occupies the place in Europe where we have seen the most dramatic increase in the number of new people infected. Now I want to show these two graphs. The red scenario shows a steep increase in the infection. If this steep increase is to continue, it will break through the normal capacity of the health service. It is absolutely essential that we push the infection so that we get into the green scenario. It will still put pressure on the health service, but then we can avoid what we have seen in the Italian health service, and that is so serious. We have a health crisis in Denmark, it is ourselves that determines how we get through this crisis."

So, also the Minister for Health is talking about the unreliable numbers of people who are infected. The curves show the 'number of cases of COVID-19' without specifying whether case means infected or hospitalized. Units on the axes are missing and the 'Normal Capacity' curve should be above the two curves, which show the two scenarios of 50% and 20% growth, but which are instead indicated to show the situation 'with and without measures'.

With correct curves for reliable hospitalization numbers, the Minister could instead have concluded: "As we can see, fortunately, we do not have a health crisis in Denmark, and we will not get it if we

balance our interaction in space and time in the future. Then we can avoid the Italian conditions and instead treat the infection as unpleasant flu."

Subsequently, the Danish Health Authority could have explained the two calculation formulas that control the infection. But the director went on to talk about the unreliable numbers of infected and failed to point out that the strength of the pandemic depends on how each country balances the three-factor formula: "Today, the epidemic is declared a pandemic. It is certainly also serious in Denmark. We have seen a very, very rapid increase in the number of people infected in Denmark."

The two infection formulas therefore speak a clear language: go back to start. Everything should reopen except activities with unbalanced interaction. Then there will be herd immunity in two months.

If instead, we begin breaking infection chains by detecting and isolating infection carriers, then just one infected in a nightclub will start wave two, and wave three, etc. And we will then introduce a permanent curfew for seniors.

Hopefully, the opposition will prevent that. Then we can avoid having to re-establish an upper house because our politicians have not learned to tell the difference between reliable and unreliable numbers.

References

TV: https://www.dr.dk/drtv/se/tv-avisen-ekstra_-pressemoeede-i-statsministeriet-om-corona_situationen_175613

The Danish Health Authority: <https://www.sst.dk/>

As YouTube videos:

The two infection formulas part 1, <https://youtu.be/nUsnQa6gi0U>

The two infection formulas part 2, <https://youtu.be/EKPpu7LWbKc>

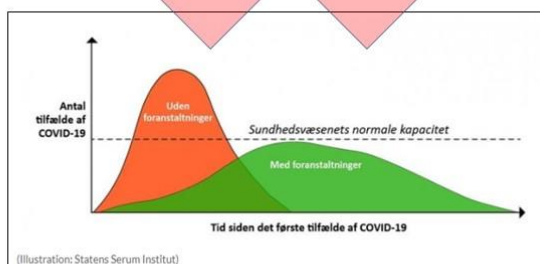
For technical details, <http://mathecademy.net/corona-infection-model/>

Linkedin version: <https://www.linkedin.com/pulse/unreliable-numbers-locked-denmark-down-allan-tarp/>

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DATA

INFECTED (*unreliable*)



BEDS (*reliable*)

