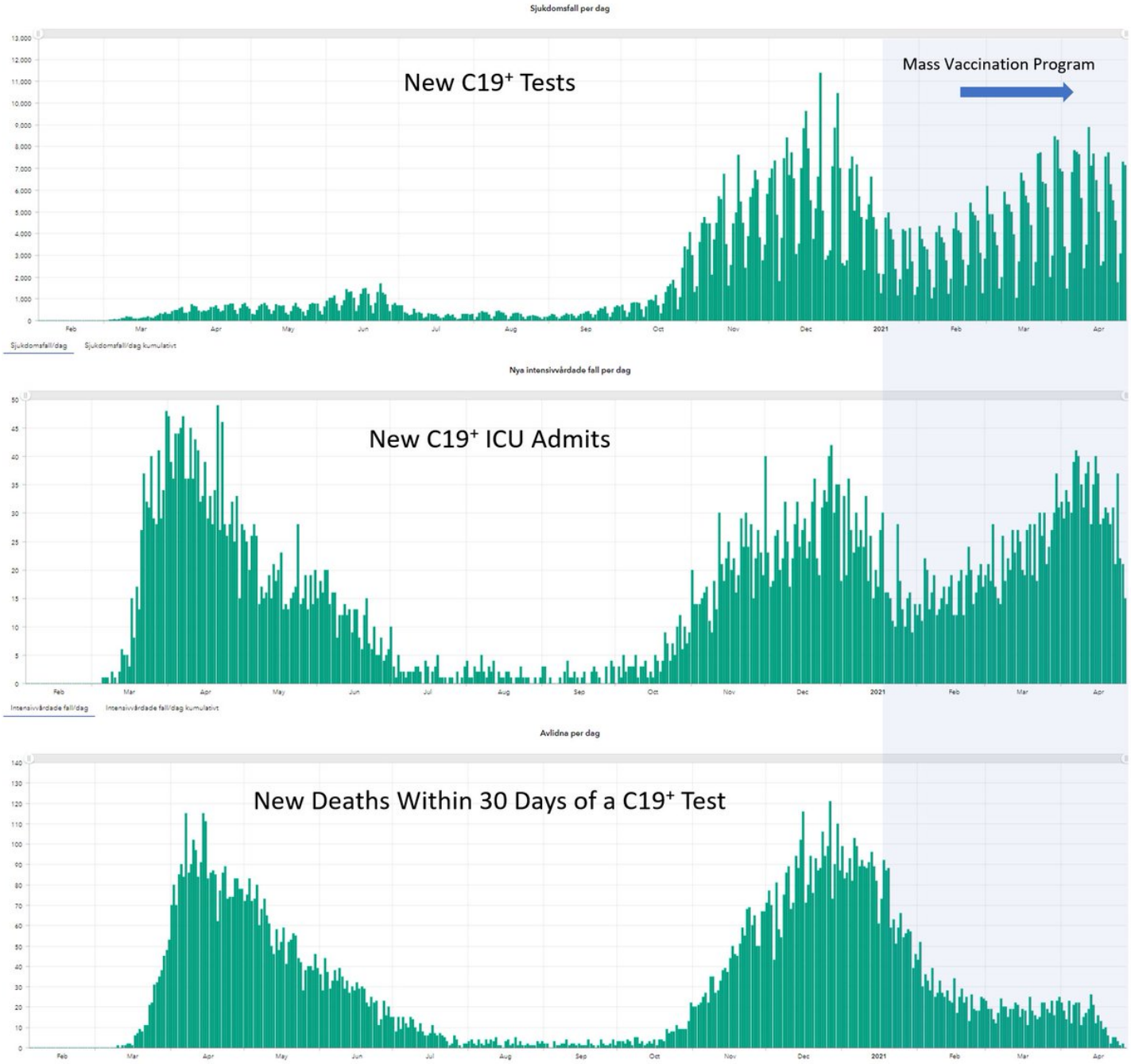
Twitter Thread by Luigi Warren ■■



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THE THIRD WAVE

Question: Has Mass Vaccination Decreased or Increased COVID-19 Mortality in Sweden?



Fundamentally, that question comes down to whether we believe the sharp and unexpected resurgence in the virus concomitant with the onset of mass vaccination was driven by mass vaccination, or we believe that is simply a coincidence.

Mass vaccination started in Sweden around the turn of the year. The rate of vaccination has been relatively slow compared to the US but, as in Florida, the campaign has prioritized the elderly. So, by now most of the population at risk of dying of COVID-19 have been vaccinated.

At the time the campaign started, COVID-19 was clearly in retreat, having peaked sometime in December. The magnitude of the fall/winter wave was in line with the "worst-case" scenario modeled by the FHM last summer.

The positive trend continues in Sweden
Three more covid-19 deaths were reported on July 27. A total of 5,700 people have died from covid-19 in Sweden, 3,114 men and 2,586 women. 49 people in Sweden are currently under intensive care due to the virus and a total of 79,395 people have been confirmed infected in Sweden. The trend continues in the right direction, state epidemiologist Anders Tegnell said at a press conference last week, "The serious cases are starting to become few, and those who are admitted to intensive care units every day are few."

Tegnell believes in minor outbreaks
"What we believe in the most is that we will continue to get outbreaks here and there. As we have seen in the city Gällivare [in northern Sweden] and as we have seen in other parts of the world," says state epidemiologist Anders Tegnell about three possible scenarios of infection spread that the Swedish Public Health Agency, FHM, has developed. "The smaller the regions, the more difficult it is to make forecasts and the forecast work is generally difficult," he points out.

Three different future scenarios of covid-19 in Sweden
Another 5,800 people could die of covid-19 in Sweden in the coming year, according to the Public Health Agency's (FHM) worst-case scenario. On behalf of the government, the authority has developed three different scenarios for how the situation in Sweden can be affected from today to September, 2021. The least serious would be that the current low rate of infection persists. If this is the case 200 are calculated to die in covid-19. In scenario two, the spread of infection is more uneven, with a peak this autumn and one after New Year with just over 3,200 deaths.

So, at the time the vaccines were rolled out, the epidemic was behaving as expected, with a seasonal resurgence followed by decline as population immunity hit the higher threshold entailed by peak season R0s.

Going into the new year, the baseline expectation would be that the decline should have continued, driven by overshoot pushing community immunity still further above the herd immunity threshold and reducing intrinsic R0s moving away from the annual maximum.

Also, although NPIs have over and over been shown to have little impact on the spread of COVID-19, the trend in NPIs in Sweden was in any case towards greater stringency as the somewhat complacent country became alarmed by the scale of the fall seasonal resurgence.

The trend reversals that kick in around a couple of weeks after the start of mass vaccination is striking and remarkable. True, immunity might roll off -- but that de-inflection seems far too sharp to be caused by such an effect.

And, a purely phenomenal "casedemic," such as was seen last year associated with the rollout of mass testing campaigns, seems unlikely because ICUs started filling up, too, with a trend concordant with the "case" trend.

Perhaps the most plausible explanation is that new variants of the virus caused the third wave. And, certainly there has been much talk of variants lately, most of which has proved overblown.

Mutations -- particularly immuno-evasive mutations -- are in the mix all the time, part of the ongoing war between an emergent pathogen and collective immunity -- a war which is always won eventually by immunity.

We did not see striking trend reversals last year, other than what could be readily explained by seasonality, even as the virus raged across Europe & the Americas. If variants are to blame, why are we seeing this now? Has anything happened that could be driving this phenomenon?

The obvious answer is the mass vaccination rollout, which in Sweden and in a number of other countries shows a striking temporal correlation with the emergence of unexpected new waves of COVID-19.

And, such an effect is not unanticipated. Vaccinologist @GVDBossche has been predicting disastrous consequences from the vaccine rollout for some months, based on arguments (a little too subtle for my understanding) about how they would drive immuno-evasive strain emergence.

Others, including @BretWeinstein and yours truly, have been raising concerns for months about the risk that the Spike-only vaccines (Pfizer, Moderna, AZ and J&J) might provide both a soft target and a set of training wheels for the virus to mutate to more immuno-evasive forms.

Weinstein has compared the mass vaccination programs to a global GoF experiment with the virus. That seems like a good way of thinking about it.

Here's a lengthy but very interesting interview between @GVDBossche and @BretWeinstein on the subject...

https://t.co/19Du3A2zWI

> Last week @BretWeinstein and his Darkhorse Podcast offered a forum for scientific discussion on the current, dramatically evolving pandemic. We talked about whether the current vaccine program risks driving the evolution of escape mutants and much more. https://t.co/5TEijEFxCG
>
> — Geert Vanden Bossche (@GVDBossche) April 23, 2021

My best guess, having followed Sweden's C19 stats very closely for a year now, is their "third wave" is due to immuno-evasive variants. The sudden rise of these variants could well be due to mass vaccination, based on similar coincidences elsewhere and mechanistic plausibility.

One way to look at the question of causation might be to do a very nuanced, fine-grained analysis of the trends to see if local trend reversals are or are not correlated with local vaccination campaigns.

I must admit, at this point I don't have much faith that even the sensible Swedes, who have been the voice of reason in the pandemic, are ready to "go there" if the answer turns out to be the "bad answer."

At a mortality level, the impact of Sweden's third wave has been fairly modest. Deaths haven't gone down as fast as one might expect, but they haven't tracked positive tests and ICU admits.

Assuming the immuno-evasive variant explanation for the wave is correct (regardless of cause), this decoupling could be explained by: (a) widespread pre-existing immunity leading to reinfections with only moderate disease progression, acting in concert with ...

(b) progressive protection of the primary at-risk population -- the >65s and especially the >80s -- by vaccination. Of note, I believe in Sweden the ICU admits are mostly non-elderly who tend to recover, as their system discourages heroic efforts to prolong the life of the aged.