

A Covid-19 de-confinement scenario compatible with economic recovery

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Abstract

If they work as expected, the strict containment measures enforced to stop the French Covid-19 epidemic will leave a large proportion of the population "naive" about the SARS-CoV-2 virus. In these conditions, how can we prevent the epidemic from rebounding, at a time when this restrictive policy will soon become untenable economically and socially? Based on the figures, now well known, of the lethality of covid-19 according to age classes, I suggest that a gradual release of the containment be instituted, which will keep retirees in isolation (the 65+ age class), whose risk is maximal and the impact on economic production the lowest. This scenario might be applicable to most European countries that enforce a mandatory retirement ages for most of their workers.

The COVID-19 epidemic popularized the concept of “gregarious immunity” (or “collective immunity”). According to this concept, an epidemic stops naturally as soon as a sufficient fraction of the population has been infected by the virus which is the cause. This notion is based on the acquisition of immunity (at least temporarily) by the synthesis and the persistence of antibodies in cured patients (or those whose infection has remained asymptomatic). Little is yet known about this process and the efficacy of immunization in the case of COVID-19 (1, 2). For the purposes of this article, I would nonetheless assume that this immunity is effective, for at least several months.

The emergency solution of social distancing, then of confinement, have two contradictory effects on the present crisis. In the immediate future, it will soon stop the exponential spread of the virus among the population and the number of socially unacceptable deaths it causes. But the more effective the containment, the more it prevents the acquisition of collective immunity, and therefore the population to reach the rate of 70% of infections which is considered necessary to stop the COVID-19 epidemic (an estimate based on the SARS-CoV-2 virus contagiousness, *i.e.* the R0 index, estimated at 2.5) (3). If, at the end of the confinement period, only 10% of the population has been exposed to this new strain of coronavirus¹, what will happen when we will be free to move again, go to work, and that travel (including international) will be restored? We will be back to the situation of the month of February, transposed to a population still "naive" at 90%. The epidemic will therefore restart from the viruses still circulating, in particular among asymptomatic young people.

The de-confinement strategy must therefore be carefully considered, and acceptable to a population that will become increasingly reluctant to follow government orders. But it is already clear that the current constraints could not be maintained much longer, under penalty of seeing our economy collapse durably, of plunging into misery the most disadvantaged social strata, and of seeing the development of violent riots in the most sensitive areas of our cities.

I would like to use a few figures again, to propose a scenario of progressive de-confinement. To do this, we must rely on the huge variation in lethality (*i.e.* the proportion of fatal outcomes among patients) depending on the age of patients. According to many concordant sources, it increases very strongly from people aged 60 to 69 years (3.6%), then widely (8%) for people aged 70 to 79 years, up to 15% for those over 80 (4). In France, more than 78% of deaths due to Covid-19 concern patients aged 75 years or more.

Even if the French lethality percentages are probably overestimated (due to the fact that the 80% of mild, untested cases are not taken into account), the influence of age remains very important, even in countries where the average lethality is much lower than ours (like Germany at 0.7%), due to their generalized testing policy (5). After a rescale (by a factor of 10), the lethality for the most active age groups in France is probably around 0.04% for those

¹ An extremely rough estimate based on the number of proven cases (therefore tested positive) as of March 30, 2020: 40,174, on the fact that the 80% of mild cases are not tested, and taking into account the delay of 15 incubation days of not yet declared disease, and a doubling of the number of cases every 4 days, the whole multiplied by 2, by security: $3.200.000 \times 2 = 6.400.000$

under 50, and 0.13% for those under 60. This brings us closer to the average lethality of a seasonal flu.

In view of this significant increase in the lethality of COVID-19 linked to age, the current confinement, together with the wearing of a mask and other barrier measures, are most often justified by the need to protect the most fragile, therefore our elders. Beyond the urgency of stopping the exponential explosion of the epidemic, once it has been brought under control, it seems pointless and economically disastrous to impose confinement on everyone, under the pretext of only protecting a clearly identified fraction of the population (the median age of the French population is 41 years) (6). 51% of hospitalizations concern patients over 64 years of age (7).

A more effective and much less costly way would be to loosen the confinement constraint for all working people but to continue to impose it on retirees, whose age group more or less corresponds to that with the highest lethality. Retired people are easily identifiable by state services, and they could even make it a voluntary civil act, in the same way that some Japanese seniors volunteered for the most exposed decontamination tasks after Fukushima's nuclear plant disaster (8). Staying strictly confined to save a country's economy, while minimizing its own risks, does not seem like an intolerable sacrifice. This measure should be accompanied by solidarity actions that we saw spontaneously flowering towards the most isolated. Such a progressive de-confinement scenario would be applicable to most of the European countries, and to others enforcing a mandatory age of retirement close to 65 years for most of its workers.

At the same time, the lifting of confinement for active workers should imperatively be accompanied by a massive deployment of viral and (soon) serological tests to circumscribe as best as possible the residual foci as soon as they appear, the strict enforcement of social distancing and other barrier gestures, and the generalization of the wearing of masks (including "handcrafted" ones) (9) which seems to have had much to do with the success with which South Korea and Japan have managed to quickly contain the spread of COVID-19 within their territory.

We will then only have to wait patiently for the complete extinction of the epidemic, then the development and marketing of an effective antiviral drug and / or a vaccine,... if that turns out to be possible.

References

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