

Exploiting Phase 2 of the COVID-19 crisis to identify attenuated SARS-CoV-2

Today, May 4th 2020, Italy transitions to Phase 2 of the COVID-19 crisis to prevent the economy from collapse, as 4 million employees will return to their workplaces. The Social Lock-Down (SLD) strategy of Phase 1 has been successful in curbing the spread but, unfortunately, not in the eradication of SARS-CoV-2, the virus that causes COVID-19. Phase 2, therefore, will put the gains of Phase 1 at serious risk. Many workers will use public transportation and will engage with many people, such that inevitably virus spread will increase again. Not only the workers themselves may get infected, but also their original SLD units (family or other types of groupings) to which they return after work. Since most virus carriers are asymptomatic, the spread of the virus may go unnoticed for a short while, before there would be considerable strain on the health care system again or worse.

Therefore, it is of the utmost importance that the workplaces that go into operation again today are, in the coming weeks, actively monitored for virus infected individuals, in order to protect the workers and their contacts (families, SLD units). To prevent new foci of virus spread, virus-positive workers should be quarantined and their original SLD units carefully studied. More importantly even, we can exploit such monitoring to obtain a decisive victory in the fight against the pandemic, along the following lines: by carefully performing follow-up research, we can identify SLD units or workplaces where the virus has been spreading, but among which the infected individuals unexpectedly (with regards to age and medical history) remain asymptomatic or become only mildly sick.

One explanation for such a stroke of luck would be that the virus would have undergone genetic changes (which can easily be revealed by sequencing efforts), to give rise to milder virus variants. If enough people would have been infected with a given SARS-CoV-2 variant, statistics will underpin whether indeed attenuation has taken place. Finally, the individuals that happen to have been infected with such a milder virus variant may build up an immune response that is indistinguishable from the response in people who have been infected by the regular virulent variants. If so, the attenuated virus variant may directly serve as the basis for a vaccine, similarly as how Albert Sabin obtained the polio vaccine that helped to drive polio to near-extinction today.

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