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Ethics and Scientific Integrity at the Time of COVID-19

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As a preliminary, let us recall, before addressing the questions of ethics and scientific integrity raised by the COVID-19, the astonishment which seized the whole of the French population at beginning of confinement, to the point that we all remained deaf to the warnings issued by our friends in Lombardy, quarantined since February 21, then subjected to confinement which was gradually reinforced the following week, before being extended across Italy, on March 8.

Scientific integrity

From the beginning of the pandemic, politicians have resorted to a large number of licensed scientists, epidemiologists, data modellers, biologists, doctors, sociologists, etc., to put realistic action plans in place. Taking advantage of the disarray in the population, some charismatic personalities have explained that, in an emergency, we could, or in the name of pragmatism, even had to free ourselves from the rules of research ethics and the usual validation procedures in sciences, to be guided by the intuition of those in the field. Undoubtedly, the need to move as quickly as possible, without letting oneself be slowed down by ancillary considerations, would explain why certain rules are waived in exceptional circumstances. At the same time, the unconditional search for truth among scientists and concern for ethics would prohibit this. In other words, ethics, validation procedures and scientific integrity are not a luxury of aesthetes that one could bypass in a situation as critical as that caused by the COVID-19 pandemic.

Needless to say, a science which does not respect the required criteria of rigour would lead to erroneous results which would risk misleading decision-makers and deceiving the population by masking the extent and nature of the danger. So, the communication around the therapeutic effects of certain medical treatments, without tangible scientific proof, has given hope for the existence of a miracle cure to a certain number of people who put themselves in danger to acquire it, and might have confused politicians. Note, here too, that the misunderstanding was based on semantics, in this case the confusion between observation and experimentation. To avoid such pitfalls and obtain tangible results, it is necessary to carry out experiments, comply with the rules and submit to peer review procedures which guarantee the reliability of the scientific approach. Contrary to what some might claim, this does not necessarily slow down the dissemination of science, because it is always possible to deposit preprints on open archives and distribute them to the entire scientific community. What is more, in a period of crisis, we can try to shorten the evaluation times for scientific articles somewhat in order to speed up their publication, on condition that the same rigorous requirement is always maintained.

Ethical experimentation remains an imperative

Let us now come to the many ethical questions raised by scientific activity. The ethics of experimentation, especially human experimentation, remains an imperative no matter what, even in a health crisis. The cardinal principles of bioethics – beneficence and non-maleficence, autonomy of the person and justice – introduced in the Belmont report in 1979, cannot be derogated from. No treatment can be given that will not improve health. At the same time, you should always make sure that the drugs do not have

harmful side effects and, where this is the case, that the benefit outweighs these. The point of clinical experimentation, with its different phases (preclinical phase including *in vitro* and animal experiments; phase 1 to verify tolerance and the absence of adverse effects on healthy volunteers; phase 2, on patients, to determine the minimum effective dose; phase 3 of comparative study; and finally phase 4 of long-term follow-up of side effects), is to provide assurance. In exceptional situations such as the AIDS epidemic, it is the case that some of these phases have been bypassed. For instance, antiretrovirals not authorised in France have been administered for so-called compassionate use when there was no alternative. But, this can only be done on an individual basis and cannot be generalised to the entire population.

In addition, this perfectly legitimate departure from the application of the main principles of clinical experimentation does not authorise any breach of these principles, in particular that one experiences in vulnerable populations, as was the case with United States with the study of the University of Tuskegee intended to better understand the evolution of syphilis when left untreated – a study which was carried out on impoverished African-American men. Regardless of the cost-benefit trade-off, in the name of personal autonomy, informed consent should be sought from patients included in a clinical experiment to ensure that they are not used as mere instruments. Here again, the crisis does not justify

ignoring this imperative. Finally, by virtue of the principle of social justice, resources must be made equally available to the entire population, without discrimination of any kind.

The need to confront the challenge of rationing

This equality of access to care, however, comes up against a reality check in the event of scarcity: what to do when there are not enough masks, hydroalcoholic gel, respirators, intensive care beds... so that everyone may benefit? And, even if there were enough of them, it would still be necessary, for operational reasons, to stagger access to these resources. To tackle this in a rational way, it is necessary to clarify the selection criteria, which is extremely delicate, even painful, but this alone makes it possible to maintain control. Not to do so would be to agree to allow oneself to be governed by arbitrariness, in which case ethical considerations cannot be resolved. The establishment of such criteria must be based on clear arguments based not only on ethical principles, but also on scientific knowledge of the risks, the chances of survival, the spread of the epidemic, etc. At the same time, these criteria must be applied with discernment, being able, sometimes, in borderline cases, to break certain overly rigid rules.

Surveillance of contagious patients

Very early on, the COVID-19 scientific council¹ questioned the strategy to be adopted at the end of the confinement to avoid a resurgence of the epidemic. Drawing on successful experiences in Southeast Asian countries, particularly China, South Korea and Singapore, the council worked on strategies to be adopted. In addition to maintaining the now-familiar physical distancing measures, it advocated a massive programme of testing, quarantining carriers of the virus and, above all, identifying people with whom those identified as contagious might have been in contact.

A peculiar feature of this disease, where some people with the virus show few symptoms (so-called 'paucisymptomatic') or are even asymptomatic for several days before the disease presents itself, if it does, reinforces the need for tracing contacts, who need to be contacted, tested and, where necessary, isolated in order to prevent as far as possible the spread of the virus.

It was decided to use general practitioners to identify contacts with patients along with medical auxiliaries grouped together in bodies called brigades, to question the contacts, encourage them to test themselves and, in the event of them presenting obvious symptoms, to direct them to seek treatment. Finally, taking a model from what has been done in Asia, the scientific committee suggested that the government use cell phones to automatically trace each person's contacts.

Digital tracing

As soon as the idea of such digital devices was put forward, many were exercised by this, fearing its potentially intrusive nature and the consequences for privacy, especially for freedom of assembly, since our exchanges would be traced. The French scientists responsible for thinking about their design, in particular those from Inria, wondered how this could remain compatible with our values and our laws. A number of choices were therefore made.

- Lack of localisation, in particular, no use of GPS, or even telephone network cells.
- Automatic tracking of contacts between mobile phones with so-called Bluetooth waves designed for very short distance communications (less than 5 meters) between connected devices, watches, headphones, etc.
- Storage of contacts in a completely anonymous way, using cryptographic techniques.
- When a person, after testing, is found to be carrying the virus, the anonymous texting of all those who have been in

contact with this person, and therefore likely to have been infected, with a message directing them to get tested and, if they have symptoms, to contact a doctor.

It should be noted that provided they are not hacked, these electronic devices do more to protect privacy than the brigades of medical auxiliaries mentioned above. Indeed, in the case of digital applications, the identity of sick people is never transmitted explicitly, while the human approach requires knowing the contagious people likely to be the source of contaminations, registering their identity on a personal database and asking a member of the brigades, who is not a doctor, and therefore not bound by the Hippocratic Oath, to question them. It therefore seems very strange that these applications should have aroused such a strong fear in Western opinions, in particular in French opinions, where many evoke, with an inappropriate reference to the work of Michel Foucault, the "biopolitical" strategy of a state in the process of becoming a police state.

Conclusion

COVID-19 undermines democracies in the face of authoritarian regimes that will perhaps emerge as the big winners of the crisis, both economically and politically. If we want parliamentary regimes to continue to claim their values in the face of ever more voracious dictatorships, it is absolutely necessary to use the right words to discuss, exchange and debate, in order to take advantage of the collective emulation that is our strength. In this regard, if we need worry about the possible misuses of technology and to guard against them, assert that the digital tracking systems envisaged today in France are starting a turn towards a totalitarian regime and a police state is a matter of impropriety in the use of words which only introduces very damaging confusions. The same is true of confusions between pathogen, here the coronavirus, and COVID-19, the disease, or between observation and experimentation.

To use Brice Parain's well-known quote – often wrongly attributed to his friend Albert Camus – *‘To name an object incorrectly is to add to the unhappiness of this world’*². We already have enough woe in this world today without adding more.