CLARIFYING TERMINOLOGY TO FACILITATE PUBLIC DEBATE
PREAMBLE

As it has done regularly in the past, in connection with complex, multi-factor and potentially long-lasting crises, Groupe URD has begun to:
- Establish a ‘real-time evaluation observatory’ in order to produce synthesis reports, analysis and recommendations about the crisis.

This briefing note N°8 is part of the second output of the COVID Observatory. Regularly updated analysis will be produced on the following subjects:

- Health;
- Food and Economic Security;
- Social Cohesion and politics;
- Migration and Mobility;
- Etc.
Summary

With an exponential increase in discussions about the coronavirus crisis over the past several months, numerous non-specialists, including television presenters and politicians, take part in the debate and make use - often inappropriately, or in ways that betray bias - of precise scientific terms and concepts that belong to the domain of epidemiology or public health in general.

Figures such as the reproduction rate or “R number” have been cited without any indication of how they may be useful or what the limits to their usefulness might be, in particular when defining strategies to be applied in very different countries or population groups.

We are far from Nicolas Boileau’s famous saying: A clear idea is clearly expressed ... and the words needed to express it are summoned up with ease. Instead, we have witnessed a communication crisis, an “infodemic” or even “infoxication”.

This note attempts to clarify certain terms in order to encourage their more accurate use, thus making them more effective as an aid to analysis and decision-making at different levels, including the political level.
Clarifying terminology to facilitate public debate

INTRODUCTION

Television presenters love to savour the sound of technical terms, often using them in no more than approximate fashion, or even quite inappropriately. Terms used - or abused - in this way are then conflated with language used by experts when they provide commentary on events, language which may subsequently be taken out of context, its scientific meaning over-simplified. This may then be re-cycled in the press or social media, perpetuating misinformation ... or disinformation.

Epidemiology and public health are complex disciplines. They have lately been thrust into the foreground and examined under a magnifying lens, with the objective of developing - on the basis of observations or facts that have not yet been fully tested or studied - conclusions to be presented as part of the urgent response to the wide range of questions to which the general public seeks answers. However, like all scientific disciplines, epidemiology and public health rely on specific concepts and terms which have been defined, contextualised and assigned their proper weight on the basis of experience and epistemology. We need to ensure that such concepts and terms are used rigorously. This present period when "lockdowns" are being relaxed requires rigorous epidemiological vigilance; and rigorous use of language, too. Words are loaded weapons, as Noam Chomsky reminded us.

The present note draws on an article of 11 June 2020 by Tom Friedan, former director of CDC, who was concerned as we are by terminological issues, which are key to communication during the current pandemic; as well as at other times of crisis.

We present below four of the most egregious terminological and semantic errors made by amateurs working – without taking the necessary precautions - in the minefield of the public presentation of epidemiological issues. While using terms of "science" gives an air of authenticity to what they say, it can actually distract the attention of the general public, even to the extent of making them less careful and vigilant; and may also distract and confuse those in charge of public health and policy, making them liable to promise unicorns.

Next follow five points on which we should focus in future, as we contemplate the uncertain prospect of a possible second wave of the coronavirus. These points deal with early warning systems, the development of effective monitoring tools as part of such warning systems, and the need to educate the general public.

TERMS POORLY UNDERSTOOD OR APPLIED

Every science has its jargon, its scientific terminology which may be difficult to use precisely and appropriately in settings where a broad general public is the audience: for example, when television presenters have only seconds to explain a point; or when politicians address a broad constituency including political sympathizers and opponents alike.
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The number of cases [of coronavirus]

The obsession with the number of cases is misleading. An analysis of the number of cases, deaths and patients recovered may be interpreted incorrectly. 10 cases in China has a very different significance from 10 cases in Vanuatu. The ratio is much more significant. Certainty about the denominator is essential. Numerous studies underscore the fact that, for example, a low percentage (often less than 15%) of infections are diagnosed. 10 cases out of 15 does not carry the same significance as 10 cases out of 100; or, widening the ratio further, 10 cases out of 1000. What can be said in the case of countries with major weaknesses in their systems of managing medical data? It makes little sense to try to predict trends from a small fraction of cases without taking into account the social and geographical distribution of the cases that have been diagnosed, or of the distribution of undiagnosed cases (asymptomatic cases, or cases that have simply not been recorded); or of the distribution of cases at different levels of community, region and state. In addition to uncertainty about the number of diagnosed cases there is uncertainty about testing [and its results]. To sum up, the number of cases cannot in itself be a relevant guide to policy or action. At worst, talk of the number of cases may lead to panic, or alternatively to a false sense of security.

Test numbers

Information on absolute numbers of tests carried out in a given country is equally unlikely to yield useful guidance on policy or action. It is more useful to monitor the percentage of positive tests, and even more useful to track the trends of numbers of tests carried out and the positive test results recorded. This ratio becomes more relevant and useful if testing is carried out systematically, in correct, uniform fashion, for example shortly after patients begin to feel unwell; in intensive fashion in nursing and care homes for the elderly and in other institutions where numbers of people live together under the same roof. Isolation [of positive cases] should be immediate, and should be monitored, while contacts need to be traced and quarantined.

The reproduction rate or R number

This refers to the virus's rate of reproduction which has entered into everyday discourse as a calculation of how many other people each person infected with the virus may in turn infect. The R rate may be a means of assessing indirectly whether the measures put in place to control the virus are working. But we are talking about an approximate estimate, based on hypotheses that cannot be verified. It will be at least a week behind the actual situation. Because of the limitations in diagnostic capacity, the R number has only limited value as a means of monitoring, or as a means of determining day to day response to the virus.

Mathematical models

The numerous models published suggesting the way the coronavirus might spread are based on varying hypotheses that may change abruptly. Such models are based on hypotheses that determine how calculations may be made. They make it possible to produce estimates, and to
make projections; and suggest how different data is to be correlated. The resulting figures are not hard facts, but material to be interpreted. Models for the coronavirus have frequently been set up by analogy with the behaviour of similar diseases, or on the basis of preliminary estimates of the current disease spread. Computer based calculation processes with their formulas and thus their results derive from these initial estimates. The people who create the model, input data and interpret results are absolutely key: much depends on their analytical or interpretive skills.

There are two ways in which models can err:

(i) if the model is wrong in the first place, the results will be wrong; and
(ii) if inaccurate or unreliable data is used, then however good the model is the results will be wrong.

Models are unlikely to be able to make predictions with a high level of numerical accuracy, but the best models can illustrate trends, especially when additional data is added to supplement hard data already collected. Models are useful in generating guidance for specific policy responses or action by those in charge. When correctly used or applied, models help decision-makers make choices that may have critical consequences: for example, they may influence the number of people who will die.

### On disinformation

Disinformation arising from misuse of figures may create intolerable pressure on health personnel, already stretched to the limit by the management of a health crisis. There is a need for epidemiologists who can correct information given out and provide explanations for - or defend as necessary - policies they themselves have recommended in situations where people are panicking or criticising what is happening on the basis of inaccurate data; epidemiologists need also to provide new information, often under pressure. This creates a vicious circle by which decision-makers need to be continually fed relevant information themselves while also having the means to respond to the mass of other information out there.

### KEY CONCEPTS

The following 5 points need to be kept in mind by epidemiologists on the ground when trying to keep the coronavirus pandemic under control, especially in areas with few cases, or in areas where access is relatively easy. Resources available in a given country will determine how much of the following may be implemented, although it should all be considered a priority.

### Monitoring contacts of infected patients

Such monitoring will be easier where there are fewer cases. By determining the number of infected people for whom the source of infection has not been identified, it is possible to judge the effectiveness of the system used for tracing contacts. Areas where there are cases without any apparent connection to each other should be provided with upgraded tracing and tracking systems.
Speedy isolation of infected people.
Ensuring that the right people are tested, obtaining test results rapidly, finding and isolating those who are infected: these can immediately halt propagation of the coronavirus. No more than 3 days and if possible less, should elapse between the first appearance of symptoms and the isolation of the patient and his contacts.

Proportion of cases among contacts placed in quarantine
This is essential to a successful contact-tracing programme. If all new cases happen among known contacts who have been placed in quarantine, the spread of the coronavirus can be stopped.

Number of infections among medical personnel
In the USA, 72,000 health workers have become infected. 400 have died. This demonstrates the poor protection afforded to medical personnel, both at work and outside the workplace. The poor level of protection is due to lack of information, failure to observe the rules, and lack of equipment.

Trends in numbers of excess deaths.
Information on the total number of deaths, compared week by week with historical trends and analysed by age cohort, provides an essential overview of what is happening both as far as coronavirus-linked health issues are concerned (including in cases that have not been diagnosed) and also problems not linked to the coronavirus. This overview helps target interventions correctly.

CONCLUSION: “A CLEAR IDEA IS CLEARLY EXPRESSED ... AND THE WORDS NEEDED TO EXPRESS IT ARE SUMMONED UP WITH EASE”

The art and the science of epidemiology in the field identify where and how the coronavirus spreads, and how to stop it. These disciplines rely on precise vocabulary and concepts. When they have been poorly understood, and thus poorly used in journalistic jargon or in social media, they have obliged the politicians in charge to put data front and centre. Public health personnel, already overburdened, have been distracted by the need to produce figures which have been used less than rigorously and therefore have little sense and less value. The health sector needs to be allowed to focus on the careful, meticulous work achieved by epidemiological practice in the field and to concentrate on monitoring key indicators such as the 5 outlined above. If the health sector were allowed to do this, the coronavirus would be better understood, and stopped. Lives would be saved; and the conditions and means of making a living would quickly be restored. Messengers – at political and other levels - and opinion-leaders must avoid using in careless or inappropriate fashion language and concepts that they do not truly understand.

Thus the public debate would improve; so too, even more crucially, would strategic decision making.
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