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## In Science We Trust? Being Honest About the Limits of Medical Research During COVID-19

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As a result of the world-wide COVID-19 epidemic, an internal tension in the goals of medicine has come to the forefront of public debate. Medical professionals are continuously faced with a tug of war between their role as an *expert*—as someone who is supposed to know best when it comes to the health and welfare of their patients—and their role as a servant: one who ultimately must, as an early philosopher of medicine put it, *heed the call of the patient* (see Canguilhem 1991).

Though not phrasing his recent paper in these terms, a similar conflict is at the heart of London's (2021) criticism of what he calls the “self-defeating code of medical ethics.” According to London, the code of medical ethics undermines itself because it asserts a degree of confidence and expertise that is left wanting when the medical profession is confronted with new diseases it does not (yet) understand and which poses a serious threat to the public. Since medical research typically is (and if done properly, ought to be) “slow,”<sup>1</sup> London worries that the urgency of the problem could come to undermine public trust in medicine as an authoritative institution.

In order to circumvent this problem, London argues that the medical profession will have to become more egalitarian (in a sense to be discussed). What is needed, he argues, is a transparent and more honest approach toward communicating the uncertainty surrounding our knowledge of novel diseases. One might worry that such transparency could have unintended consequences: that it could actually threaten public respect for,



and trust in, the medical profession. Such a worry needs to be taken seriously. Although London begins to address this concern in his paper, we would like to expand on the matter here.

London argues for what he calls an “Egalitarian Research Imperative” meant to preserve both trust and efficiency in medical research:

Egalitarian Research Imperative: There is a strong social imperative to promote the ability of communities to create, sustain, and engage in research understood as a scheme of social cooperation that respects the status of stakeholders as free and equal and that functions to generate information and interventions needed to enable the basic social systems of their community to equitably, effectively and efficiently safeguard and advance the basic interests of its constituent members. (London 2021, 11)

In broad terms, there is much to support in such an imperative, but as formulated it is somewhat vague. What does it mean to have an egalitarian, stakeholder-based research imperative? We will try to clarify how greater honesty may reinforce rather than erode trust, and show why this is likely to be a desirable approach to achieving London's ends. We hope this may be of use to those who are considering how to reform professional guidelines in order to avoid the self-defeat that London fears.

Toward this end, we would like to emphasize that openness and transparency need not be obstacles or dangers to the stability of medical institutions. There is no real dilemma here. Whereas non-epidemic times

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<sup>1</sup>So, too, should the steps between primary evidence collection, drawing of inferences about the real-world meaning of any observed effects, and the formulation and roll-out of public health policy typically be slow, with adequate attention paid to complex contextual (e.g., sociocultural) factors, robust translational research, and the use of realistic models of human behavior, i.e., outside of relatively tightly-controlled clinical or experimental contexts (Earp and Darby 2019; Fish et al 2020; Ijzerman et al. 2020).

put relatively little strain on the relationship between medicine as an authority vs. public service, COVID-19 has shown how quickly the public can turn against once-trusted institutions under conditions of heightened uncertainty. One solution to this problem might be to double down on the (over)confidence with which public health information is provided, firmly asserting the authority of traditional medical institutions and their privileged access to knowledge of the disease and effective solutions for tackling it. This approach, however, may be undesirable for both ethical and practical reasons. We suggest that an open recognition of a lack of knowledge, particularly about new diseases or treatments, need not entail a failure of medicine, nor a perception of failure amongst the public. And it does not amount to ceding authority and/or trust to fringe, pseudoscientific positions. What is required, rather, is an attempt to shift lay expectations of what ‘good science’ looks like.

Whilst pseudoscience asserts confidence despite a lack of genuine empirical support, medical practitioners (and others responsible for communicating about medicine to the public) should highlight to their patients that medical knowledge is constantly updating in the face of new, uncertain, often controversial, and sometimes conflicting data. Responding to such changing information will sometimes result in substantive changes in advice,<sup>2</sup> and a collective effort is needed to ensure that this is seen as part of the normal process of science and policymaking, rather than as an indication of their failures.

For example, patients and the public generally should understand that a given study or scientific paper is almost never the “final word” on *any* reasonably complicated (or contested) empirical question: rather, it should be seen as something more like a ‘progress report’ or a step in an ongoing conversation (Firestein 2015). Medical practitioners, on the other hand, who make assertions with inappropriate certainty should be seen with suspicion.

At first blush, it may seem that a much greater degree of honesty about the often messy, flawed way in which medical science tends to proceed in general (Earp and Shaw 2017; Ritchie 2020; Stegenga 2018), and about our imperfect, ever-evolving understanding of specific diseases, will cause the public to reject such

science altogether. For example, one may wonder whether such honesty will invite the attitude taken by patients who (unwarrantedly) feel that they ‘know better’ than their doctors: the conviction that, as Collins (2014) puts it, “we are all scientific experts now.” But there is a middle ground between acknowledging limitations in medical research and sacrificing the very notion of specialized knowledge.

Indeed, such honesty, we argue, is a prerequisite for maintaining a trusting relationship between medical institutions (and practitioners) and the public. This the case both in principle (since to deserve trust, healthcare systems and practitioners must fulfill the requirements of trustworthiness, including honesty) (O’Neill 2002), and in practice: empirical research suggests that more honest communication about scientific limitations and uncertainty need not substantially erode trust (van der Bles et al. 2020). Accordingly, if trust in medical institutions is warranted, then its maintenance should be promoted by means that do not undermine such trust (i.e., we ought not to lie or deceive as tools to promote trust); not only is there an ethical imperative to avoid such behavior, but it may also be self-defeating (for instance, if such behavior is revealed at some later point).

Attempts to better explain uncertainty in medical evidence will be challenging, but there is support from social science research regarding how best to present this information clearly and effectively (for instance, through the use of fact-boxes, numbers, and visualizations) (McDowell et al. 2016). Translating this research into useable tools for medical practitioners and communicators will be central to improving accurate and ethical medical science communication.

Science and medicine sit in the same boat. Medical research, like scientific research more generally, takes time and may have limited resources with which to respond immediately to new epidemiological problems. We should admit that medicine cannot do the impossible. But neither can anything else.

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<sup>2</sup>Of course, it is important that the *current* advice is given with ‘confidence intervals’ around it, with appropriate qualifications about the sources and strength of evidence, its limitations and generalizability, and so on. By contrast, if the current advice is given in an overly confident, definitive way—and then it needs to be updated in light of new evidence—this may contribute to the perception that science and medicine are unreliable.

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## Expert Communication and the Self-Defeating Codes of Scientific Ethics

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Just as the COVID-19 pandemic has laid bare the limitations of medical codes of ethics (London 2021), it has also laid bare the limitations of *scientific* codes of ethics, particularly with regard to expert communication. This commentary will argue that scientific experts may face a fundamental dilemma between prioritizing *actionability* and prioritizing *scientific transparency* in their communications, and moreover, that this dilemma has an ethical dimension that should be anticipated in ethical guidelines for scientists.

The crux of the tradeoff facing scientific experts is the following: If the expert prioritizes actionability by downplaying scientific uncertainty, this can indeed spur the public to make behavioral changes. However, if the expert's statements turn out to be wrong afterwards, the trustworthiness of the scientist and indeed that of the scientific community as a whole may suffer. The risk is that the public perceives experts to be

paternalistic, where not all scientific details are communicated in order to avoid undesirable patterns of behavior. London's example of Dwayne "The Rock" Johnson, who communicated that "the plasma that's in your blood can literally save lives" (London 2021, 11), is a case in point of where actionability was prioritized over scientific transparency. Risks to future individual or collective trustworthiness may thus prevent a prudent scientific expert from prioritizing actionability too much over scientific transparency.

Yet there is no easy way out, because a scientific expert can also be *too* scrupulous in conveying what the scientific community does not yet know or is not yet certain about. Newton once compared himself to a child collecting pebbles on the beach, at the edge of a great ocean of truth yet to be discovered; a similar epistemic humility from a scientific expert would not only lead to the expert being ignored in the crowded

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