



Book Forum

Vaccine Hesitancy: Public Trust, Expertise, and the War on Science by Maya Goldenberg: Reply by the Author

I am very grateful for this opportunity to engage with thoughtful commentaries offered by Ryoa Chung, Stephen John, Joan Leach, and Yolonda Wilson and Lou Vinarcsik. They all deeply recognize the tangle of factors that inform and motivate vaccine hesitancy and have encouraged me to think more about the implications of my mapping of the complex terrain, my understanding of the problems, and my proposed solutions. In her commentary, Joan Leach characterized vaccine hesitancy as a paradigm case study of science communication “in the face of, well, what exactly?” (p. 1) She identifies “what exactly” as a mix of endogenous and exogenous factors that shape the science-society communications landscape:

Is it public distrust? Mis- and dis-information confusion? Ignorance? Political motivation? Wilful disregard? Libertarian individualism? Could it be that ‘vaccine hesitancy’ is a label that in itself, is additionally troubling or indicative of the state of the science-society relationship? (Leach, p. 1)

The answer, both she and I think, is all of the above. This multiplicity makes vaccine hesitancy a difficult topic for analysis. One runs the risk of including too much—social factors that seem far removed from vaccine attitudes, thereby making the causal relationship difficult to empirically establish—or excluding something important by focusing only on more immediate influences. In this reply to my critics, I will address the charges of too much (by John) and too little (by Chung as well as Wilson and Vinarcsik). I will also attend to Leach's important considerations of how the publics are discouraged from participating in science.

In his comments, Stephen John allows that “Goldenberg's attacks on some standard framings of ‘vaccine hesitancy’ are completely correct, and that we need to look more deeply at questions of institutional trust.” (John p. 1) However, where he is “less convinced is in [Goldenberg's] account of the causes of hesitancy, and her associated conclusions” (ibid). His claim is that while the retroactively assigned causal claims seem very plausible, they may be wrong. I had succeeded in showing that “a tight relationship between big pharma and medical research challenges the trustworthiness of medical knowledge” and that “the medical establishment has been, and continues to be, racist. Still, it doesn't follow that actual vaccine hesitancy mainly, or even ever, follows from these concerns.” (John, p. 2).

As John explains, the expressed reasons for mistrust of vaccines in Great Britain (where he resides) often point to the malfeasance of “Big

Pharma”, but vaccine hesitators also cite government incompetence and demonstrate animosity towards Public Health England. Regarding medical racism, this feature of the health care experience for so many people certainly warrants mistrust in medical care (and this can include misgivings about vaccination), but this need not be the reason vaccine hesitancy exists. I see that I invite this criticism in my admission that little empirical research has been done on the connection between medical racism and pediatric vaccine hesitancy (Goldenberg, 2021, pp. 9–11). I can only make the theoretical case for the plausibility of this thesis. My argument that research bias led to this gap in the literature points to underrepresentation and “white ignorance” (Mills, 2007) within public health research but does not establish causation. Indeed, I can only point to limited direct study of medical racism and vaccine hesitancy (Goldenberg, 2021, pp. 8–9, 131–132) as well as auxiliary evidence about lower trust in health care in support of my claim (ibid., p. 131, 139–40, 168–9, 179–181). Couldn't, then, both commercialized medicine and medical racism be “explanans in search of an explanandum” (John, p. 2) where I am erroneously reading my own concerns into others' behaviours? This is John's worry.

John is doing more than claiming that all scientific claims are fallible. Rather, all the social and behavioural scientific research connecting medical mistrust and commercialization as well as medical mistrust and racism (much of which is cited in my book) may simply be wrong. This charge requires more justification than John could provide in his commentary. He provides no alternative account of the drivers of vaccine hesitancy, but instead points to voting patterns in the 2016 Brexit referendum as evidence that action and prudential interests often don't line up. Briefly, voters often do not vote in ways that support their beliefs, commitments, and interests. Perhaps it is the same with vaccination. The seeming irrationality of voting patterns is a long-standing and well-known phenomenon (see for example, the Lippman-Dewey debate of the 1920s) that challenges the rationality of democratic governance.¹ There has been renewed interest in this challenge since the Brexit vote and election of Donald Trump as President of the United States, also in 2016. The point John wants to make is that irrational voting behaviour demonstrates that it is difficult, perhaps folly, to think that what people say reflects how and why they act. So, what makes me so sure that the problems of commercialized medicine and medical racism drive vaccine hesitancy *and* that addressing those problems may remediate it?

While the problems of democracy prompted Walter Lippman in 1922 and more contemporary theorists to turn away from democracy, recommending instead increased expert-driven bureaucracy (Lippman, 1922/2004), limiting the right to vote to educated and informed citizens

¹ In *Public Opinion* (1922/2004), Walter Lippman lamented that the ideal of democracy cannot be met because we cannot achieve the requirement of informed citizenry. Citizens do not have direct experience of the wide variety of issues addressed in policies, and even the shortcut solution where we select the representative or political party that best represents our own interests assumes that citizens have a good grasp of what their interests actually are, and which party best addresses them. This proves to be a difficult task in the complex communications landscape where (in Lippman's time and in ours today) propaganda and misinformation skews our judgments.

(Brennan, 2016a; 2016b), foregoing elections in favour of lotteries (Guerrero, 2014), or a general shift from democracy to epistocracy (Brennan, 2016a), I side with John Dewey in proposing to fix the problems of democracy with *more* democracy rather than less. I take Dewey's claim seriously that “the man who wears the shoe knows best that it pinches and where it pinches, even if the expert shoemaker is the best judge of how the trouble is to be remedied” (Dewey, 1927/2019, p. 224). I do not see a version of science governance that undermines or ignores the will of the people as having a chance for success. Where John suggests we would do better addressing vaccine hesitancy by targeting the “low hanging fruit” rather than aspiring for radical reform that prioritizes democracy and equality (p. 5), I counter that the low hanging fruit—misinformation and misunderstanding—has already being vigorously addressed. My argument in Part II (“The Crisis of Trust”) of the book was that these efforts to debunk, prebunk, and inoculate against misinformation (e.g., Roozenbeek & van der Linden, 2021) gain so little traction precisely because we need to look upstream at the conditions that allow misinformation, disinformation, and conspiracy to take hold.

The vaccine hesitancy geography that I describe includes poor public understanding due to confusing and conflicting messaging as well as misinformation, the limited impact of fact-based educational interventions, and growing distrust between health experts and the population. (The features of Brexit, as I understand it, were analogous.) Political polarization breeds in this climate, and then cycles back to further challenge science communications around vaccines (see Leach's (2022) description of the challenges). To solve these issues sustainably, we need open and honest relationships built on mutual respect between healthcare providers and patients, effective public health messaging, and diversity, inclusion, and representation among stakeholders in all health sectors. These interventions are good for science and good for democracy. Vaccine hesitancy would have to be an exceptional problem if it *wasn't* impacted by the polarizing social factors that I detail in my analysis. This is because science is socially situated.

In democratic regimes, science plays a part in political governance (Turner, 2003) by informing policy (Douglas, 2009) and rhetorically lending credibility to government action (Goldenberg, 2021) when politicians promise to “follow the science”. This credibility (and the reward of public trust) is difficult to sustain because science is not value-free and evidence-based policy does not evade politics (Goldenberg, 2021, pp. 96–97). If anything, an overfocus on science for policy issues (I call it “scientizing politics” pp. 91–107) can impede decision-making and result in unsatisfactory decisions (Pielke, 2007; Sarewitz, 2004). The notorious histories of science harming publics (e.g., “hygiene” programs that masked eugenics policies) and the extent to which science supports power interests to this day inform public scepticism and so-called “anti-science” views. The solution, espoused by many social epistemologists including me, is that science needs more democratic governance (rather than circling of the expert wagons). Longino's critical contextual empiricism (1990; 2002) democratizes science by increasing representation among and responsiveness to the membership of scientific communities. More recently, social responsibility and public inclusion have been added to the list of desiderata for scientific governance (Goldenberg, 2021; Irzik & Kurtulumus, 2019; Kitcher, 2011; Kourany, 2010; Rolin, 2021). To this end, I added “inclusion, representation, and public service” to the list of Mertonian scientific norms (Goldenberg, 2021, p. 149), and recommended redress for vaccine hesitancy by addressing sources of public mistrust in science.

I make these recommendations with appreciation of the challenges: the interests of the people are varied and often shaped by propaganda (as Lippman [1922/2004] articulated so well a century before social media overtook the traditional press). The so-called “will of the people” that guides democratic governance has likely always been that way. Democracy, then, has always been clumsy and imperfect. But democracy persists and so does the rationale for improving rather than giving up on it. Dewey's (1925/1982) response to Lippman was that there is more work to be done—primarily through civic education—to bolster

democracy and redress weaknesses like the influence of propaganda and (in contemporary lingo) “fake news”. My own contribution to addressing a vexing problem for science and society relations was to reject the supposed “war on science” allegedly launched by ignorant (p. 21) and irrational (p. 41) individuals. The social and epistemological costs of upholding this narrative are too great. As Chung correctly inferred, “such a reductive framing cuts off genuine public deliberation about the concerns, arguments, and values underlying their hesitancy” (Chung, p. 1).

Now for “too little”, that is, too narrow analysis of vaccine hesitancy. Both Ryoa Chung (2022) and Yolonda Wilson and Lou Vinarcsik (2022) wished to expand my critical focus on the problems of scientific governance to the problems of political and economic governance, especially neoliberal capitalism. Chung, for example, complements my book for “open[ing] essential perspectives for thinking about pluralism and science” but wants broader consideration of the “external factors” fueling the political instrumentalization of vaccine hesitancy: “libertarian ideology, neo-liberal economics, hyper-individualism, and partisan politics” (Chung p. 5). They doubt that the better practices within scientific and health care communities that I recommended would have done much to prevent anti-vaccine movement during COVID. Wilson and Vinarcsik similarly find my analysis of problems within scientific institutions, medicine, and public health, and in their relationships to the publics, to be helpful but “incomplete.” A comprehensive analysis of vaccine hesitancy, especially COVID vaccine hesitancy, requires careful consideration of America's apotheosis of individualism and the politics of freedom and rights in this period of late capitalism (Wilson and Vinarcsik p. 4).²

I agree with both Chung and Wilson and Vinarcsik that the narratives of COVID vaccine hesitancy are indelibly marked by the limits of market-driven pandemic response, whereby the vaccine manufacturers were not trusted, and governments and public health agencies were bound to cumbersome licensing agreements and inadequate distribution plans that prioritized business interests over public health needs. All efforts to enact people-centred vaccination schemes that privileged access and health (e.g., TRIPS waiver, COVAX) have not successfully countered the business imperative that markets and profits rule. Amid mounting public dissatisfaction and pushback against vaccines, public health, government, and democracy in general, COVID monopolies remain in place.

Health justice advocacy like *The People's Vaccine* continue to press world leaders to “stop the next COVID variant and finally end the pandemic by waiving intellectual property rights, sharing vaccine formulas, and funding global production of vaccines, tests, and treatments” (People's Vaccine N.D.). Global health researchers know that “disaster capitalism,” even when bolstered by billionaire philanthropy, always falls short. Delayed, slow, and poor access to life-saving vaccines and essential medications in lower-income countries are more the norm than the exception. For example, it took decades after entering Northern markets to establish the supply of vaccines to prevent pneumonia caused by *Haemophilus influenzae* in lower income countries. Similarly, access to the *Streptococcus pneumoniae* vaccine to prevent pneumococcal disease was slow and remains poorly available in low- and middle-income countries. Few in global health can or will forget the lives lost to HIV/AIDS in lower income countries due to years of delay and unwillingness by high income nations and pharmaceutical companies to share patent-protected anti-retroviral therapies for HIV/AIDS. The same demands for access, information, and waivers on manufacturing rights are now taking place regarding COVID-19 vaccines. A promising recent initiative, the *mRNA Vaccine Technology Transfer Hub*, operates with the (informed) assumption that relying on the limited goodwill of wealthy nations and Northern pharmaceutical companies will not bring about the resources and results that lower income countries need (Maxmen, 2022).

This situation warrants critical sociopolitical and global justice analyses, but the science studies perspective that I bring to vaccine hesitancy still makes contact with the exogenous factors that Chung and Wilson and

² The same challenge to my work was offered by Solomon (2022).

Vinarcsik are attentive to. Science and authority are tied due to numerous historical and political circumstances. “Science will solve this” was the oversized slogan guiding this pandemic,³ and not “history teaches” or “economic reform now.” Leach sees this connection between science and society when she describes my recommended changes to the patient-provider encounter as striving to “break out of neoliberal choice discourse”, and my recommendation for public health communication that does not define the “reasonable people” and their concerns (Leach p. 3). Additionally, the call for messaging that “move[s] away from cynical nudging and battling personal/populations rhetorics” to avoid the epistemic disenfranchisement and predatory social media rhetorics that enabled a twin “infodemic” (ibid.). Some of my recommendations place heavier demands on scientific institutions, with implications far broader than science. Delimiting industry influence on health research and health care practice and countering medical racism will impact other sectors as well (e.g., economy, education). Recasting the publics’ relationships to science opens up new possibilities for us in relation to other social institutions too.

My point is that the endogenous and exogenous drivers of vaccine hesitancy are not as separate as Wilson and Vinarcsik and Chung seem to suggest. Science governance and political governance have mirror problems. For example, Leach, a science communications researcher, found my analysis to be useful for considering “the myriad ways in which publics are not supposed to participate in science” (Leach, p. 1). Despite broad approval of public engagement with science (Miller, 2001; Stilgoe et al., 2014) and participatory science communications (Metcalfe et al., 2022) among communications and policy researchers, “multiple disciplines and professional discourses still want to police how publics participate” (Leach, p. 1). I hold the view that vaccine hesitancy, debate, and controversy are about “much more than vaccines” (Goldenberg, 2021, p. 15). They instead capture “a cluster of temporally, geographically, and historically specific concerns” regarding the relationship of science and society, broadly speaking to include considerations of justice, equity, and power (ibid.).⁴

Delimited public participation in science, much like voter disenfranchisement and suppression in politics, increases public resentment, polarization, and violence. Neoliberal discourses of individual choice and responsibility have been a feature of public health policy since the 1970s (see Goldenberg, 2021, p. 33) and the COVID pandemic has once again demonstrated their conceptual and practical limits. The 2022 public health consumer model of assessing your own risk of COVID as public health measures are lifted and US President Biden’s foreboding promise of a “winter of pain” for the unvaccinated illustrate neoliberal public health. A chaotic 2.5 years into the pandemic, with endemicity the likely outcome, it is evident that public health without a coherent “public” is ineffective.

Public health communications and policies have widely assumed a “reasonable people” target audience. Reasonable people are those who vaccinate, perhaps with a nudge, and do the right thing. Q&A style information campaigns on vaccines are meant to help this imagined audience make the decision that is “right for you”. But the structuring of pre-set questions defines the scope of “reasonable” concern as well as the right answer. There is little offered to those publics whose personal questions cannot be answered by population data and whose “right

choice” does not include vaccination. So why was the individual selected as the public health agent in the first place?

All told, Leach writes, despite over a half century’s push by numerous nations to elevate science communication and to put scientific findings at the centre of public and policy debate (see Gaiscoigne et al., 2020), “appropriate ways to participate in science are still fairly narrow” (Leach p. 2). They are:

- do as scientists say
- do as politicians (who rely on scientific advisors) say

Interestingly, “do your own research” is a red flag, a “euphemism for seeking and spreading misinformation” (ibid.). Surely the many inaccurate pronouncements of armchair epidemiologists throughout the COVID pandemic bolster this interpretation, but how and why did studying an issue go wrong? Rather than a supposed crisis of irrationality, I call this a crisis of trust brought on by a failure of leadership to establish the social and societal foundations for effective public health. Leach explains:

All the ‘individual choice’, cynical nudging, and public jostling of experts has had the negative effect of pushing people to the fringes of epistemic respectability (p. 2).

The health consumer model for “reasonable people” thereby viciously undermines the communitarian values (including equity and non-discrimination) that public health efforts require. Community is not built into public health policies but must emerge from a societal infrastructure that encourages social cohesion.

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³ Leach (p.3) describes an aerial image of the Australian Academy of Science’s parking lot, photographed in August 202, where the words “Science Will Solve This” were painted in big block letters. See: <https://www.abc.net.au/news/2020-08-21/science-will-solve-this-1/12571826?nw=0>.

⁴ In liberal democratic societies, the pressing concerns folded into vaccine controversy include: “how technology shapes our lives; who decides and/or regulates technological intrusions on our lives; knowledge and power; science for the people vs. science for corporate interests; government overreach; individual liberty and family autonomy; globalization, multiculturalism, pluralism; community cohesion; health disparities; income inequality; and other issues” (Goldenberg, 2021, p. 15).

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