All for Vaccination? Vaccination for All? (Word Count: 1583)

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A COVID-19 vaccine has been positioned by governments since the beginning as the way to control the pandemic and return normal social and economic functioning. As a result, the news in November 2020 that an effective COVID-19 vaccine might be available for use by healthcare professionals and in certain vulnerable populations before the end of the year (and more widely in 2021) has caused great excitement (1). This said, scientific questions remain about lasting immunity created by COVID-19 vaccination and efficacy in older people (2). There are also a vast range of **manufacturing and distribution issues** to be navigated in vaccinating billions of people globally. Importantly, the science of vaccine research and development cannot end the pandemic alone. When the efficacy and safety of a COVID-19 vaccine or vaccines can be established, **social factors** will play a highly significant role in the success of vaccines in controlling the COVID-19 pandemic.

One of the key questions that sociologists can contribute to answering is whether people will accept COVID-19 vaccination and the associated question of whether the numbers will be high enough to achieve herd immunity (thus limiting the continued spread of the disease and protecting vulnerable people). Some initial research suggests this will vary significantly **across cultural and political contexts** and research in the US setting indicates that as many as **one-fifth of Americans** are displaying COVID-19 vaccine hesitancy and may be unwilling to receive a COVID-19 vaccine. Why might this be? What social factors shape vaccine hesitancy or outright rejection? In this vein, it is the purpose of this article to review and assert the utility of sociological knowledge about vaccines. Building on our **previous work**,

we also want to pose a range of, as yet, unanswered questions about COVID-19 vaccination and thus offer an agenda for sociological research. Alongside exploring the social influences on vaccine hesitancy, we also argue that to effectively control the COVID-19 pandemic sociological analysis is also required of the processes of development and regulation of COVID-19 vaccines and of inequalities in the access to and availability of vaccines.

Social Influences on Vaccine Attitudes

The World Health Organisation (WHO) recommends that 95% of all children are vaccinated against vaccine preventable diseases. However, in 2018/2019 the UK **fell short** of this target for every routine childhood vaccine. This said, vaccine refusal rates only tell some of the story, as can a focus **solely on anti-vaxxers**. Hesitancy about vaccines is more widespread (including people who hold doubts about safety and necessity yet may have consented to vaccines). Vaccine hesitancy is important to understand because it has the **potential to turn into outright vaccine refusal** in the future amongst wider numbers of people. Though critical attitudes towards vaccines are nothing new (3), sociologists and anthropologists have accumulated a large body of research concerned with the social basis of contemporary vaccine hesitancy and refusal.

What does this research reveal? Safety is the major concern for those displaying vaccine hesitancy. However, **as we argue elsewhere**, vaccine hesitancy reflects a number of aspects including perceptions of risk and social responsibility, and past experiences with vaccines, pharmaceuticals, and experiences and interactions within healthcare settings more generally. Contemporary vaccine hesitancy and outright anti-vaccination sentiment are also influenced by various forms of news media, the internet, and certainly social media. Most

importantly, future willingness to accept COVID-19 vaccination will also reflect levels of (dis)trust in medical professionals, healthcare and government authorities, and the pharmaceutical industry. Sociologists have argued that one strategy for **building and sustaining trust** at the institutional level is through policies which enhance transparency and accountability by making the public aware of uncertainties and risks rather than masking them.

Whilst this body of knowledge allows us to predict why people might be hesitant towards a COVID-19 vaccine, a large proportion of the research on attitudes towards vaccines is concerned with parental decision-making. It is not necessarily clear if and how parental attitudes about vaccination are reflected more generally. It is also unclear how the special circumstances of COVID-19, namely the vast social and economic disruption it has caused, might shape public willingness to accept COVID-19 vaccination compared with other diseases where health, social and economic threats are less immediately obvious (at least at this point in time). In a possible context where COVID-19 vaccination is required multiple times to develop or sustain immunity, these questions are perhaps particularly important.

Vaccine Development and Regulation

To what extent can vaccine manufacturers be relied on to develop vaccines that position global public health as the primary interest? At a general level, there has been **concern** that guidance on minimum standards for a COVID-19 vaccine produced by the WHO (including 50% efficacy levels (4) and comparison between vaccines rather than solely against placebo) might be ignored in the haste for a vaccine. Equally, though some companies have received public money and promised not to profit from COVID-19 vaccine development, at least at this

stage, others have invested their own money into vaccine development and are treating it as a **commercial opportunity**. The combination of the rush to develop a vaccine alongside the lure of billions in potential profits could result in a **suboptimal vaccine** creating only short lived immunity and/or the **curtailment of ongoing trials of potentially better vaccines.**

There are also questions about the relationships between pharmaceutical and biotechnology companies, regulators and governments. To what extent does COVID-19 represent a unique regulatory situation? In this regard, regulators have launched **rolling reviews** of vaccine data to attempt to shorten approval times. More generally, is the regulatory apparatus sufficiently independent to ensure the safety, efficacy and quality of vaccines? Sociologists have long shown how relationships between the regulatory state and pharmaceutical companies have biased science away from the public interest. The regulation of pharmaceuticals has, in this regard, been argued to be underpinned by **neoliberal corporate bias** where companies have established privileged influence within regulatory procedures. Sociological research is required to assess the extent to which corporate bias might be present in COVID-19 vaccine regulation, to chart the specific impacts and influences of commercial (and political) interests, and to assess the associated extent to which global regulatory standards are upheld. Sociological research can also reveal the range of the **forms of uncertainty that exist in regulation as well as how they are managed**.

Governments and various forms of **media** have throughout the pandemic placed and fostered great hope that a safe and effective vaccine can and will be developed - that vaccine science can ultimately prevail to preserve life and restore normal social and economic functioning. In this regard, there are questions to be asked in the sociologies of **hope** and **expectations** about how these phenomena are reflected in or have structured responses to

the COVID-19 pandemic. In this regard, the role of hope in the ability to attract vast levels of funding and government willingness to share the financial risks of vaccine development with pharmaceutical/biotechnology companies should be explored.

Trust and hope are means of bridging uncertainty, but specific uncertainties that are perhaps less well mediated by trust and hope exist in relation to the **implications** of a 'hard' Brexit (with the transition period ending on 1st January 2021). Brexit could have a damaging effect on supply chains and result in long delays in accessing vaccines manufactured on the continent. The impacts of Brexit will need to be considered as part of broader analyses of all the moving parts of the pandemic and attempts to manufacture and distribute vaccines.

Vaccination Programmes: Access and Availability

Assuming the availability of a safe and effective vaccination, there will be need for sociological analysis and policy evaluation of vaccination programmes. How might national and international inequalities shape availability and access to vaccines? The whole world is going to require access to a vaccine. But there has been concern that **vaccine nationalism**, where governments sign agreements with vaccine manufacturers to supply their own populations first, might mean that poorer countries have to wait or cannot afford a vaccine. The **COVID-19 Global Access (COVAX)** initiative, co-led by the WHO, is seen by some as the solution to the problem of vaccine nationalism. It has been signed by 172 countries to create a global advanced market commitment for vaccines which will ostensibly protect low-and middle-income countries. However, the US (under President Trump) has opted out and, when supplies are divided up between countries doses could be insufficient. There are a range of vaccines that have received investment via COVAX, but it unclear how easy it will be to

ethically and political navigate the distribution to different countries of vaccines that potentially show different levels of efficacy. Equally, signing up to COVAX does not prevent rich countries from striking their own deals (which could create pressures in the **supply chain and drive prices up**). The damages of the COVID-19 pandemic have not been felt by all countries equally, and neither, it seems, will the benefits of vaccines. These issues will require empirical investigation.

There are also important comparative questions to be asked about how public and private healthcare systems provide access to vaccines and how existing inequalities *within* countries shape who or how quickly someone can be vaccinated. Equally, there are ethical questions requiring exploration about the **order** in which people might receive vaccines. Healthcare professionals and the elderly are first in line for a vaccine. However, in the UK, COVID-19 has **exacerbated existing inequalities**. There have been disproportionate impacts **regionally**, on **ethnic minorities**, and on the **poor** which have not been reflected in initial vaccine prioritisation order.

Notes:

1) **Pfizer** (in partnership with BioNTech) were the first to announce that they had developed an effective vaccine and were very close to having compiled enough efficacy and safety data to seek regulatory approval for their vaccine (and is now under review in the US), followed by biotechnology company **Moderna**. Many more are in the preclinical or clinical trial phases of development.
2) **Early evidence** suggests that COVID-19 vaccines have produced strong immune responses in older people.

3) See **Calnan and Douglass, 2020** for a discussion of the history of vaccination and the persistence of vaccine critical attitudes.
4) Pfizer and Moderna have both claimed their vaccines have over 90% efficacy - but this needs to be verified by regulators.

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