

As the UK hunkered down for its first Covid lockdown last April, Candesic's **Dr Joe Taylor** raised the prospect that immunity passports could pave the way back to some semblance of normality. More than a year later and with a vaccination programme in full swing, he revisits an idea that looks set become a firm feature of post-pandemic reality



Divided we rise?



Implications of immunity passports

Given there is a price to be paid for liberty, it follows that there are some advantages to its curtailment. Twelve months ago, I considered the pressing issue of whether society would be divided into the 'immunes' and 'the non-immunes' on the basis of SARS-CoV-2 immunity and its certification¹.

The government has repeatedly invoked the mantra of 'following the science', forgetting that its role is to govern with agency. How we use information about individuals' Covid status is a choice.

It doesn't really matter whether you think immunity passports are another unjustified restriction of liberty or an act of solidarity sufficient to put an end to this pandemic misery.

We will have immunity passports in one form or another, so we better think carefully about their implications; we each will soon be living with or without one.

What is an immunity passport?

Let's simply take it that people will have tiered freedoms to work, travel and socialise based on three factors:

1. Have you been vaccinated?
2. Have you got SARS-Cov-2 antibodies?
3. Have you had a recent negative PCR test?

If you answer yes to any of these questions you get awarded an immunity passport, 'Covid-status certificate' to use the jargon *du jour*, and are good to get on with your life. If you don't then things are going to get tricky for you.

What are we trying to achieve with these immunity passports?

The theorised value of a passport is not actually so much a demonstration of

immunity as an estimation of the probability of being a vector – being someone who can pass the virus on.

Both vaccination and natural exposure result in a temporary increase in serum antibodies to the SARS-CoV-2 virus. These antibodies persist post-exposure to mop up any viral particles in the blood and, alongside conferring immunity, greatly reduce the chance of spreading the virus.

Immunity doesn't end when the antibodies are no longer being produced in bulk and floating around in the blood. Instead, immunity becomes latent in the memory cells that cause an immunological cascade following secondary exposure leading to new antibody production, but this takes a bit of time. After some months, you can be both a vector and immune because the virus has a window within which to replicate and be spread in your breath before the memory cells cotton on and flush the virus out of the transient host.

The latest research shows that post-vaccination antibodies decline

after about 12 weeks and post-exposure antibodies seem to persist for nearly seven months. Therefore, were we to say an unvaccinated person could get the green light on an immunity passport only if they showed antibodies, we would be denying freedoms associated with such a passport from the immune when they are not actively producing plenty of the associated antibodies. These would be 'false negatives' for immunity using our current tests. However, this could be an accurate way of determining if a person could spread the virus and if that's our principal objective then it makes more sense to test for antibodies in all than to confirm immunity.

To truly prove immunological status, you would have to expose someone to the virus, or something with molecular similarity, and see how the body responds.

It's as unethical to expose people to the virus to check immunity as it is to drown a suspected witch in a barrel and, as yet there is not a commonly available test that can check if the immune system is on the lookout for SARS-CoV-2 and ready to respond.

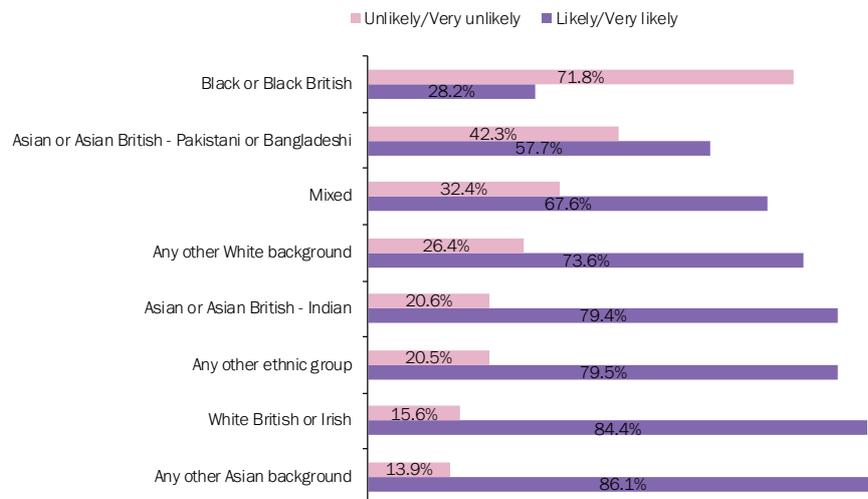
It is on these simple principals that the basis of a passport system, in its current postulated incarnations at least, fails in its primary objectives.

Will immunity passports overcome vaccine hesitancy?

With the increasingly widespread availability of vaccines, one of the remaining motivations for the introduction of immunity passports is to drive people to take up the vaccine. All the baseless derogation of vaccines on shockingly poor scientific interpretation of the evidence has led many to question their safety. Uptake in some communities remains low.

Let's put a couple of things straight here, the panoply of approved vaccines is not only certain to be better than the morbid sequelae of Covid symptoms, but they are universally much safer than taking your chances crossing the road, going on a late-night stroll in a thunderstorm or surfing in the hunting grounds of Great Whites off the coast of Australia (yes, I did

FIGURE ONE
LIKELIHOOD OF TAKING A COVID VACCINE BY ETHNICITY



SOURCE CANDESIC RESEARCH AND ANALYSIS

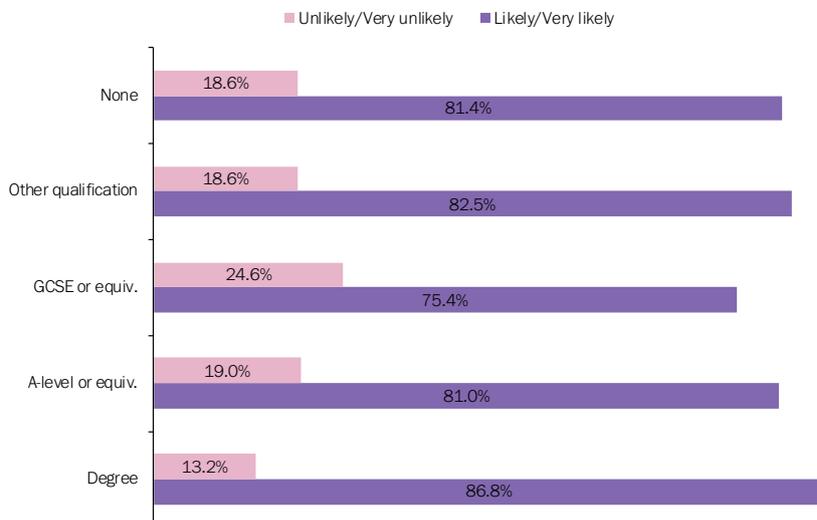
double check these stats).

The conclusion reached by some continental European countries that the Oxford/AZ vaccine isn't safe in an older age group because of a lack of direct evidence would be laughable were it not so consequential. It is equivalent to denying Barry from Birmingham a new cancer drug because the original clinical study had nobody called Barry or anyone from Birmingham in it. Are we to force Barry to risk his life until a new study has been undertaken to understand the potential peculiarities of the drug's effects on his specific profile?

Now let's take the much-reported clot-

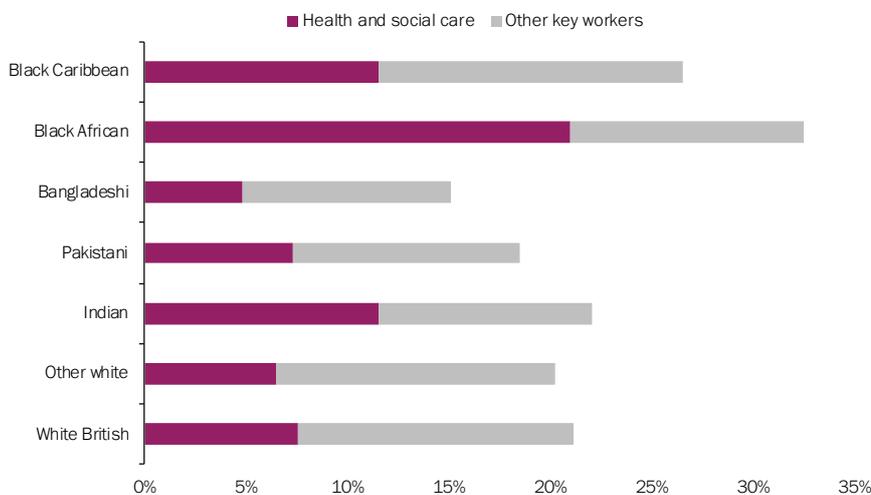
ting 'side effects' of vaccines and choices by some to restrict its use in younger people. All this is based on comparison of incidence in the vaccinated population against a pre-Covid world baselines. This is nonsensical because viral infection causes blood clots in a small number of people and does so by exactly the same physiological mechanism that the vaccine is purported to cause them. We have now established that Covid is much more likely to cause clots than the vaccine, so it's only sensible to make the comparison between vaccinated and unvaccinated people in 2020/21 in determination of the relationship between a vaccine and

FIGURE TWO
LIKELIHOOD OF TAKING A COVID VACCINE BY EDUCATIONAL ATTAINMENT



SOURCE CANDESIC RESEARCH AND ANALYSIS

FIGURE THREE
ETHNIC ORIGINS OF KEY WORKERS IN THE UK, % OF WORKING POPULATION



SOURCE CANDESIC RESEARCH AND ANALYSIS

an adverse coagulation event. If we had that data, I am sure we would see a much weaker correlation than has been used as the basis for denying people access to vaccines.

The logical approach to improving the vaccine programme engagement is education. Let's give people the information we have and let them make an informed choice. Immunity passports will only further irk those who think the vaccine programme is a dystopian conspiracy and further entrench ill-informed views.

Will passports allow a return to normality?

The utility of immunity passports depends on the premise that they will enable safe access to environments that have been closed or restricted during the pandemic.

Israel has introduced the 'Green Pass' – an app released in February to demonstrate presumed immunity following infection with the virus or through vaccination. Green Pass-holders get exclusive access to gyms, hotels, theatres, concerts, indoor dining and bars. Under-16s who are not eligible for vaccination must demonstrate a recent negative test.

Disentangling the impact of vaccination from that of the Green Pass system isn't possible. However, Israel has shown that a combination of vaccination and immunity passports can facilitate the opening up of society for willing participants.

WHENEVER A BUREAUCRATIC SYSTEM IS IN PLACE TO CONTROL A PERSON'S ACCESS TO SIGNIFICANT LIBERTIES, THERE WILL BE PEOPLE WHO SEEK TO FIND WEAKNESSES IN THE SYSTEM TO USURP IT TO THE BENEFIT OF INDIVIDUALS OR GROUPS

Are we about to endorse a new racial and socio-economic apartheid?

Vaccine uptake has varied across communities in the UK (see Figures One and Two²).

Of those unwilling to take up the offer of inoculation, those from certain ethnic minority groups and with lower levels of education make up a higher proportion.

Inevitably, the introduction of any certificate for immunity status in the UK would preferentially advantage wealthier white people. It doesn't sit well, nor should it.

Today, we are facing a clamour by government to insist on Covid vaccination across health and social care workers as part of their 'duty of care'. If you don't engage with the vaccine programme, you'll be shown the door, presumably because physically dragging you out of your workplace would break social distancing rules!

The truth is that we depend on the people who are least likely to take up the vaccine to deliver a disproportionate amount of health and social care (See Figure Three³).

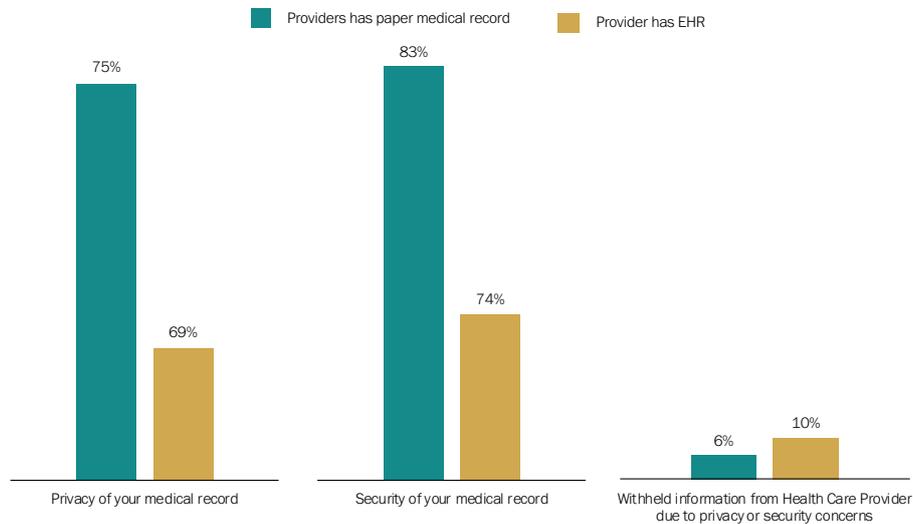
Denying these people access to the labour pool would cripple a system already struggling with record numbers of unfilled vacancies. 27 local authorities have social care staff vaccination rates below 70% this month, and all 32 London Boroughs, where ethnic minority representation in the workforce is highest, have rates below 80%⁴. Perhaps the solution is very frequent PCR testing of this cohort to enable their ongoing Covid-negative status to be certified?

Scientific findings exist independently of moral judgement, irrespective of how uncomfortable we may find them. However, the way we use objective knowledge to make decisions on how to behave, govern and legislate is the most morally dependent of all processes.

How likely are people to take up the offer of a passport?

It is likely that hesitance for engagement in the passport programme will mirror that for inoculation. However,

FIGURE FOUR
PREVALENCE OF CONCERNS ABOUT THE SECURITY OF MEDICAL INFORMATION IN THE USA



SOURCE CANDESIC RESEARCH AND ANALYSIS

groups that have not been vaccinated may well be more likely to have been exposed to the virus and to have developed natural immunity.

Consequently, we may be discriminating against those who have similar or greater levels of immunity purely on the basis of their unwillingness to be tested or use a passport.

People simply do not like their health-care information being widely shared (see Figure Four). When nations, including Israel, start targeting the unvaccinated for unsolicited vaccine encouragement visits then we pit the people against the manifest state in the form of its bureaucracy and that can only end badly.

In general, we can expect those with least faith in the vaccine to be least inclined to engage in a passport programme. This both undermines its usefulness and is counterproductive as the state and the citizen become entrenched on each side of the debate.

Will passports have a detrimental impact on wellbeing?

While healthcare and fitness environments are not likely to require people to present a passport, wellbeing depends on access to many additional services and environments.

We are all fed up with our restricted liberty. There was a time when we thought terrorism would undermine our way of live,

but frankly I'm not sure why Al-Qaeda et al would bother now.

We're now used to covering our faces when venturing to the shops, protests are met with heavy handed policing and I didn't get a vote on whether I could see my granddad off in his care home. We will not see a meaningful debate about immunity passports either.

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The 'live and let live' attitude that once seemed to prevail in the UK has become difficult to recall. The days of a kind, forgiving society, supportive of individual liberty and the 'odd balls' that make up the tapestry of our neighbourhoods seemingly long gone.

There was a time when people wore badges in protest and not in authoritarian sublimation to 'the science'. You never had to ask for the 'next slide please' because the path ahead was one of our own choosing. Whatever the government thinks it's up to, people have been quietly and sensibly ignoring lockdown rules for a long time and immunity passports will be no different

Human beings are social animals, our physical and mental health depends on being around other people.

There is a huge impact on our mental health when we cannot access the richness of our culture and society. Immunity passports will breach the human rights of those who reject vaccination.

Who is going to be responsible for testing and which tests will be used?

Presumably, there will be a certified range of tests and testing providers, but the risk of gaming through to outright fraud will exist. People will want to have positive immunity status, and so the preference will be for tests with the highest rates of false positives.

Whenever a bureaucratic system is in place to control a person's access to significant liberties, there will be people who seek to find weaknesses in the system to usurp it to the benefit of individuals or groups.



Convalescent sera for Covid-19 could become a valuable commodity. Antibody rich sera from those who have recovered from infection could be administered to effectively demonstrate a false positive for people who have no long-term immunity. Blood doping in this way seems extreme, but when fundamental freedoms and access to the labour market are at stake, it is likely to become a growing phenomenon.

Does the government have enough competence to deliver on digital passports?

Repeated unfulfilled promises from government ministers and agencies around their ability to develop the 'Track and Trace' app suggest that there is little competency to deliver the digital support an immunity passport would require.

It is expected that most likely route would be to integrate a form of identification, for example through digital face recognition, with existing NHS medical records via the general NHS app, rather than the Covid-19 contact tracing app. Although recent reports suggest the NHS app will not be able to fulfil this role by 17 May.

There are a plethora of passport apps springing up from independent and quasi-governmental organisations, but it is not only the people of the UK but other countries' border forces who will need to have confidence in our digital capabilities. This is a tall order as we have been dismantling our previously close international relationships at the same time the pandemic has taken hold. It is perhaps the IBM Excelsior Pass, the Common-Pass from a Swiss-based non-profit or the International Air Transport Associa-

tion's Travel Pass that will become the 'ticket to ride'.

What will be the responsibilities of employers in enforcing conditions around immunity status?

Given the obligations to protect their employees and safeguard customers, businesses could introduce their own requirements for proof of immunity. Many have already done this but it opens up a can of worms, with a complex balance of responsibilities on the part of employers.

Providing a safe working environment is the responsibility of the employer, but employers cannot discriminate against potential or existing employees on the basis of relevant factors such as disability or race.

In the UK, the Equality Act 2010 makes clear that a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on your ability to carry out normal daily activities constitutes a disability, and that an employer cannot discriminate against a person on the basis of having a disability.

It will be a case for the courts to decide how far employers can, or indeed must, go to determine the likelihood of a person being a viral vector.

What happens over the next two years?

As the vaccine comes under control through mass vaccination it will become increasingly unlikely to derive immunity through natural exposure. Tiered freedom in these circumstances could mean that the vaccine becomes the only alternative

to costly regular PCR testing.

I don't have a particular problem with enforced vaccination, however let us call a cat with spots a leopard no matter how stealthy it is. If our objective is herd immunity in every geographical region and community then it seems we will have to make being unexposed and unvaccinated associated with so much pain that people have no real-world choice.

This is not and never has been 'following the science'. It's a choice, it's the agency of governments, it's the decision to select when the needs of the many outweigh those of the few. If you think the great philosophical and moral questions are the discourse of toms long since consigned to the reading lists of politics students then think again. They are writ large; they are the unspoken and undiscussed great questions of our time.

Here we are - one year later

Smartphones, QR codes, mandatory tattoos or emblems sewn on your jacket. It's not a thin edge of the wedge, a slippery slope or the road to perdition. It's simply unworkable from an operational standpoint and illogical from a scientific one. Our successful vaccine programme means domestic use of immunity passports is no longer needed and they constitute a danger to social cohesion.

Immunity passports are a white elephant, emblematic of a failure of global leadership to fairly distribute vaccines and ramp up their production sufficient to address the tsunami that has wrought havoc across the landlocked as much as those exposed to this global tide.

Now is the time for action, not paperwork or digital apps. Time for respecting each other, not for further division. If you are asked how you will discriminate within your employees, customers or patients the answer must be simply that you will not.

NOTES

- 1 LaingBuisson, April 24th 2020
- 2 Robertson et al. *Brain, Behavior and Immunity*. 2021;94:41
- 3 Platt et al. *LSE British Politics and Policy*. 2020
- 4 Department of Health and Social Care. April 2021