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COVID-19 Immunity — There will be an app for that



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As the COVID-19 outbreak continues ([Visualizing the History of Pandemics](#)) several application development projects and consortia are underway to develop an [Immunity passport](#) on mobile devices (“immunity apps”, “immunity certificates”) where the bearer can demonstrate having undergone a successful medical test for antibodies of a virus.

However, in context of COVID-19, there is a rub: having antibodies might not create immunity against COVID-19.

And, most important, there is a whole list of ethical issues that might arise that counter the benefit of an immunity app significantly.

The following resources provide you an overview of various aspects and might help you decide if and when to trust, when to download and when to use an immunity app.

The resources below are only a starting point and new resources and reports will appear as the situation develops.

Testing

As background, an extensive discussion on various aspects of testing is available here: [COVID-19 testing](#) including test approaches, effectiveness and the test effort of different countries. Immunity passports will rely on testing for antibodies, not for a current infection.

Vaccine

An interesting discussion of the COVID-19 vaccine is given by Bill Gates: [What you need to know about the COVID-19 vaccine](#). A lot of resources are available on the [Web](#).

Immunity Apps and Consortia

Various immunity apps are developed. Some examples are [OU develops world's first COVID-19 digital immunity passport](#), [UK lockdown could be ended with help of pioneering mobile passport app says developer](#), or [CoronaPass](#). The GitHub project [immunity-certificates](#) collects references to immunity applications.

Larger initiatives are underway as well, like [COVID-19 'Immunity Passport' Unites 60 Firms on Self-Sovereign ID Project](#) and [Covid Credentials Initiative](#).

A first app survey appeared: [Tech vendors work on apps to certify your COVID-19 immunity](#).

Contact Tracing Apps

While immunity apps state the result of a test for antibodies for a person, tracing apps state if phones met each other. This article collects tracing apps: [COVID-19 apps](#).

Personal note: while immunity apps will most likely build in a challenge mechanism where the bearer can prove that he is who he says he is (addressing the situation where the phone is handed off), the tracing apps will have to find a way as well to prove that the owner of the phone (or the person carrying the phone) has immunity (or is infected). Otherwise the fact that phones met is meaningless as it is unknown who carried a phone when it met another one.

The Rub

In context of COVID-19, however, there is a rub: having antibodies might not create immunity against COVID-19. Future research will provide more clarity over time as to what immunity antibodies provide (if at all), if second infections are prevented (or not), or how long an immunity will last — in addition to the effectiveness of any vaccines as they become available.

The WHO in a Scientific Brief emphasizes that there is no evidence that antibodies provide immunity: [“Immunity passports” in the context of COVID-19](#). The WHO's

Scientific Brief is discussed in the press, e.g., [Coronavirus: Immunity passports ‘could increase virus spread’](#).

Another critical discussion is here: [Is it too soon for a “CoronaPass” immunity app?](#)

Ethical Issues

There are many ethical issues that arise in context of an immunity app that counter its benefits significantly and users need to be aware of (from [immunity-certificates](#)):

- Risk of people being forced to take tests or lose job
- Risk of people intentionally infecting themselves to acquire immunity certificates
- Risk of creating a black market of forged or otherwise falsified immunity certificates

In addition, there is a risk of misuse of an immunity app for other purposes than its goal of demonstrating possessing antibodies (or immunity).

Do we need an Immunity App? Yes — Eventually

In my opinion, we will need an immunity app. While there are critical voices (rightly so in my opinion) at this point in time based on the fact that antibodies do not mean immunity, immunity apps will become important once immunity can be established for a person as this will be a basis of admission to high contact events (like public transportation, offices, warehouses, etc.) in order to ensure all the participant’s safety.

Immunity, most likely, cannot be provided for everybody at the same time. I expect it to be a process over a period of time. During the roll out, there will be people have have immunity, and those that don’t have immunity. To establish safety for all, an immunity app will help in this period.

The Future

While currently the world focuses on COVID-19, I hope that all the scientific and technical work will be a basis for continuous development for future epidemics and pandemics, as well as serve a basis for change in how society changes its approach to prepare for future threads. My neck hair stood up when watching the TED talk [The next outbreak? We’re not ready](#) (from March 2015 (!), [blog](#)).

What can YOU do?

- Stay safe!
- Contribute articles and resources on all aspects of COVID-19 to [immunity-certificates](#) for everybody to benefit from

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Disclaimer

Christoph Bussler is a Solutions Architect at Google, Inc. (Google Cloud). The opinions stated here are my own, not those of my company.

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