# SGMI-MENTOR – proximity tracing

**Swiss Society for Medical Informatics**

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## Background

In the context of the SARS-CoV-2 pandemic, various tools that may be useful in the epidemiological control of the spread of the disease are being discussed. These include (as a supplement to the instructions recommended for all persons, such as social distancing, hygiene measures, etc.) measures that enable consistent identification and isolation of persons who have been in contact with infected/sick persons [1]. In addition to the classic, personnel-intensive tracing of contacts of infected patients (auxiliary persons identify remembered contacts, call them by telephone and recommend self-isolation and, if necessary, further diagnostic tests), digital aids – known as proximity tracing apps – are increasingly being used and tested.

From a medical informatics perspective, the use of such a proximity tracing app must be promoted for the reasons given below, provided that national requirements (e.g., FOPH/BAG recommendation, legislation [probably June 2020]) are met. It must be emphasised that this is not a replacement of the classic contact tracing, but rather a supplement to it.

## Assessment of the use of proximity tracing (via app)

– Conventional contact tracing quickly reaches the limits of feasibility and financial viability, especially for contacts who are not remembered, and also if there is a high number of infected persons. These gaps can be efficiently filled by proximity tracing [2].

– Proximity tracing is much more flexible and enables faster interventions than traditional contact tracing. Especially in a disease such as COVID-19, where there is evidence that many infections are transmitted in the pre- and early symptomatic phases, time plays an enormous role. The faster contact persons can be isolated, the sooner further infections can be prevented and thus the reproduction rate reduced. A digital solution may be days faster in alerting contact persons, which can be an invaluable advantage.

– We are by no means familiar with all the people with whom we have daily contact. Nor do we remember all the contacts we had during the day who could have been potentially dangerous, not least because close contacts can be out of sight. Proximity tracing is easily able to close this gap.

– Depending on the design of digital solutions, data protection issues are a bigger problem. However, the negative examples of inadequate data protection and the enforcement of follow-up measures (often from authoritarian states) should not obscure the fact that the applications developed for use and/or operated in Switzerland are exemplary in terms of the protection of privacy (anonymous, decentralised data storage), and their use is voluntary (opt-in). According to the current state of knowledge, the use of such an app can be recommended without any relevant concerns (the basis for this argumentation is the "Swiss PT App" model of the Decentralised Privacy-Preserving Proximity Tracing (PT^3C) Consortium) [3].

– The course of the current pandemic (the possibility of a second wave, unclear situation regarding re-infection, unclear situation regarding vaccination, low infestation level) is difficult to predict. Accordingly, both longer phases of low activity and phases of rapid spread must be expected. Thus there is a need for the possibility to (re)start tracing activity quickly and at any time, which would be limited with traditional contact tracing and could only be achieved by means of a large amount of data.

## Limits of proximity tracing

Of course, digital proximity tracing can only contribute to successful epidemic containment in combination with existing analysis and containment methods. Limitations may be found in particular in the following cases:

– The usage rate will primarily determine how successfully proximity tracing can be implemented. Currently it is assumed that at least 60% usage is necessary for a very good result to be achieved. The app is useful at a lower usage rate, but the benefit increases disproportionately with increasing distribution. Accordingly, measures are necessary to promote usage as much as possible.

– Proximity tracing requires availability of a smartphone and installation of an app, as well as constant use of the smartphone. In addition, the (voluntary) reporting of a positive test result is decisive for successful implementation. User compliance will determine how great the benefit of such a solution is.

– Bluetooth connections (automatically activated by the app) are on the one hand a strain on the device's battery (Android and Apple in particular promise deep integration into their operating systems, so that this problem is reduced) and on the other hand theoretically also a danger for cyber-crime attacks (e.g., blueborne malware).

– Increased carrying of the smartphone (especially in the everyday life of healthcare professionals) can lead to an increased deposit of viruses / hospital pathogens on the device if it is effectively touched repeatedly. Hygiene rules and the regular use of surface disinfectants, such as those used for screens/laptops, are correspondingly important.

## Recommendation from the SSMI perspective

1. The use of proximity tracing should be actively encouraged.

2. As soon as an appropriate solution is available, awareness should be raised very quickly with proactive recommendations for using the app. Data protection design of the planned application is nearly perfect and in combination with the high value concerning health, economic and personal benefits (e.g., freedom of movement in a second wave) no reasonable reservation remain.

3. Updating the smartphone operating system to the latest version in advance (possibly security relevant) should be recommended.

4. Use of the app also during work, including in health care, in a work environment where mobiles are not generally prohibited (smartphone in clothes, if possible no touching of the smartphone during work, regular disinfection) should be recommended. Excluded from this recommendation are pure COVID-19 wards in hospitals.

5. Rapid reporting of positive test results should be encouraged, including incentive systems

6. Staff and the population should be informed early that the use of the app might be necessary on a cyclical basis (active use followed by a period in which use no longer makes sense, followed by resumption of use).

7. A long legislative or regulatory process should be avoided in the interest of rapid usage.

**References**

1 Bundesamt für Gesundheit. Faktenblatt Swiss PT-App. https://www.bag.admin.ch/bag/de/home/krankheiten/ausbrueche-epidemien-pandemien/aktuelle-ausbrueche-epidemien/novel-cov/situation-schweiz-und-international.html#-329265180

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3 Ferretti L, Wymant C, Kendall M, Zhao L, Nurtay A, Abeler-Dörner L, et al. Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing. Science. 2020;368(6491): . http://dx.doi.org/10.1126/science.abb6936. PubMed.