The SwissCovid GAEN app after six months: It’s not just about technology!

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Timeline of SARS-CoV-2 pandemic and SwissCovid

Cases (PCR-positive tests) per 100'000 inhabitants, population of 8.6 Mio. Source: https://www.covid19.admin.ch/de/overview

First lockdown

Release of SwissCovid

Near-breakdown of contact tracing

1000 CovidCodes*

Second lockdown (mostly b/c of B.1.1.7)

1.9 Mio. active users

300 Codes*

1.6 Mio. active users

45 CovidCodes*

1 Mio. active users

1 CovidCode*

* 7-day average of entered CovidCodes
Built around federalistic structures. Following principles of privacy, voluntariness, non-discrimination (as stipulated by the SwissCovid law).

### SwissCovid Notification Cascade

**Person A (Index Case)**

- Digital exchange of random identifiers

**Person B (exposed contact)**

- Download of «infectious» identifiers
  
  - if
Is SwissCovid able to alter the course of the pandemic?
Be aware of the primary role of SwissCovid
(a tool to warn exposed contacts; NOT to gather epidemiological data)

Leverage existing research studies and data

Analyze SwissCovid/SwissCovid from a systems perspective.
Include upstream and downstream processes in the notification cascade.
Also helps to identify bottlenecks and improvements.

Focus on the smaller questions (centered around the main intended effects):

1) Is SwissCovid notifying exposed contacts faster?
2) Is SwissCovid reaching more exposed contacts (involves trade-off!)?
3) Can SwissCovid act as «second defense line»?
SwissCovid evaluation: Is SwissCovid notifying exposed contacts faster?

https://www.medrxiv.org/content/10.1101/2020.12.21.20248619v1

Figure 1: Time from exposure to quarantine in app notified versus not app notified stratified by exposure setting

- Study embedded in Conact Tracing of the Canton of Zurich (pop. 1.5 Mio.)
- Included 260 close contacts (72% app user)
- 38% of close contacts with app received notification
- Notified contacts with exposure risk outside own household entered quarantine 1 day earlier
SwissCovid evaluation: data-driven simulation of population impact


- Analysis of notification cascade for Canton of Zurich (Sept. 2020)
- 324 of 1923 (16.8%) PCR-positive cases uploaded CovidCodes
- 170 persons received quarantine recommendation (equivalent of 5% in mandatory quarantine)
- 30 persons tested PCR-positive after app notification

Person A (Index Case)

Person B (exposed contact)

N=537 [372,703] app users

N=324 [252,394] CovidCodes received & entered

Digital exchange of random identifiers

Download of «infectious» identifiers

N=722 calls

N=1374 [932, 2586] alerted

N tests?

N=30 [23,36]

MCT

CovidCode

170 [154, 186] recommended quarantine

170 persons received quarantine recommendation (equivalent of 5% in mandatory quarantine)
SwissCovid evaluation: Is SwissCovid notifying more contacts?

Preliminary (!) analysis based on Covid-19 Social Monitor (https://csm.netlify.app/, n=2803)

• Nationwide panel survey, representative for age, gender, language region

• Up to 44/74 (60%) app notified persons may not show up in any statistic in Switzerland

• Caveats: Self-reports, no strict definition of «quarantine» (can be self-imposed or mandated).
Implementation challenges through the lens of Normalization Process Theory


Procedural **bottlenecks** (delivery delays for covidcodes)

Unmet **communication** needs (by users, other actors)

Fears of **resource** competition (time and money)

Unclear **effectiveness**

**Compliance** obstacles / misaligned incentives
# Compliance & Motivations: App usage in the Swiss population

Results from a nation-wide panel survey including 1’500 respondents (Covid-19 Social Monitor)

<table>
<thead>
<tr>
<th>Uses SwissCovid App</th>
<th>Mid-July 2020</th>
<th>First week of October 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>43.9%</td>
<td>46.5% (4% have uninstalled the app)</td>
</tr>
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<table>
<thead>
<tr>
<th>Reasons for non-use</th>
<th>Mid-July 2020</th>
<th>First week of October 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not the right phone</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>Privacy concerns</td>
<td>24%</td>
<td>22%</td>
</tr>
<tr>
<td>Not perceived as useful</td>
<td>27%</td>
<td>30%</td>
</tr>
</tbody>
</table>

FOPH weekly case numbers:

- Mid-July 2020: 626
- First week of October 2020: 3'294
Take home messages

Based on early experiences with the SwissCovid app

- Think about a monitoring system while implementing SwissCovid.
- Leverage ongoing research studies and pool administrative data.
- The technical aspects work as expected.
- We are starting to see infected cases who may not have gotten tested without an app notification.
- SwissCovid is making a relevant contribution to pandemic mitigation.
- Challenges for app effectiveness are more on the non-technical side (delays in code generation, lack of understanding, misaligned incentives).
- Communication (of successes, improvements) remains crucial.
Thank you for your attention!

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