

***For the user:*** Easy tool to track your symptom severity daily, Connect with health provider remotely, Share & get support from the community

*For Health Provider:* Monitor patient’s health condition without close contact, More data in hand to triage if next level medical care is necessary, Understanding of patient trends by locality before they show in the ER

*For Public Health Agency:* Collect patient data for coronavirus research and study, Close track for Suspect or confirmed cases at scale, analyze statistical prevalence of disease among the populous, including when the rate of flu-like symptoms returns to normal levels

**Problem**

According to [a recent study](http://weekly.chinacdc.cn/en/article/id/e53946e2-c6c4-41e9-9a9b-fea8db1a8f51), more than 80% of confirmed coronavirus cases are mild, this translated into a big number of patients in United States (~44k) and worldwide(~338k). While in China every infected patient is quarantined and treated in temporary hospitals, most of other regions take different guideline suggesting patients with mild symptoms to self-quarantine at home. In addition, there are a lot more people who developed influenza-like symptom but couldn’t get tested because of the limitation on testing capability.

Those audiences (including confirmed mild cases, and suspect cases with symptoms), are given very similar [guidance](https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/caring-for-yourself-at-home.html) including: Monitor your symptoms carefully, if the symptom get worse or develop emergency warning signs, get medical attention immediately.

This could introduce couple problems:

* *<For the user>* There is no easy tool to record the symptom and track the trends day by day.
* <*For the user*> There is no clear guideline on when is appropriate to seek for immediate medical attention. The recovery process could be long and stressful, knowing they are fighting this alone.
* <*For the health provider*> could be time-consuming to triage if they need to bring a patient for further assessment or treatment.
* <For the public health agency> The detailed data on mild cases are not collected, which could be critical for clinical research (i.e. is lost sense of smell be a symptom of COVID-19?)

**Solution**

Release a lightweight app/service that allows the user to track their symptoms and trends day by day. With the user consent, those data could be shared with the care provider or public health department to provide better patient care. For those who are willing to contribute to the community or research, they could choose to publish their symptom online anonymous with limited location information.

Similar products:

* [OLVG corona check](https://luscii.com/nl/corona-virus/) Amsterdam hospital launches app to check symptoms that could possibly be caused by coronavirus. With the app, the user could pass on health data daily. The OLVG corona check team then access the answers provided and if there is a medical reason, contact the user within 24 hours.
* [Covid near you](https://covidnearyou.org/#!/) Use crowdsources data to visualize maps to help citizens and public health agencies identify current and potential hotspots for COVID-19.
* [Datos](https://www.datos-health.com/coronavirus/) Remote Care platform developed by an Isreal startup

**How (what does this app/service do)**

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| --- |
| For the user:   * First assessment from <could be similar as the [CDC assessment bot](https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/testing.html)> * Daily symptoms survey <i.e. coughing, short of breath, headache> * Vital Sign collection <i.e. temperature, level of SpO2, blood pressure>, manually entered, usually twice a day * Notification/Messages from the care provider, get the latest updates and guidance * View the neighborhood on map where symptoms are reported |
| For the Care Provider:   * A dashboard of confirmed cases, and patients who reported corona like symptoms * Daily trend of patient’s symptoms and vital signs * Notification/Message to patient when needed   For the Public Health   * Detailed statistics including -   + Demographic   + Geographic   + Symptom   + Medical History |

**Early App Mockup <to be update>**

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Mock to add??

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| --- | --- |
| The map view | The care provider view |

**How to get this done**

We have three options to build this product:

1. Build a standalone app and submit it to App Store/Google Play
2. Integrating with existing service Microsoft are building, i.e. CDC bot, MSN Survey
3. Reach out to Hospitals/Health Agencies/Public Health to form a collaboration while Microsoft provides the technical support to build the app and service, the health agencies owns the contents including the survey to ask, patient data, and the interpretation of the data

Option 1 could allow us to run fast with a minimum viable product, however, we will face many challenging including 1) legal concerns around how we store and use personal health data 2) how to ensure the quality of our data from trolls 3) how to help user read the data without misleading them 4) distribution and adoption

Option 2 sounds promising if we could leverage the existing partnership and platform. We need to make sure the scenario aligned well and provide a seamless flow for the users. Especially when both the bot and MSN survey is a onetime activity where the Daily Check Up is daily usage.

Option 3 is not exclusive with Option 2, it just adds up the flexibility when Option 2 is not feasible, and inclining that we might need to integrate the service with other hospital systems <i.e. my chart>.

**Why Microsoft**

Under the current rapidly development of CODIV-19 outbreak, the medical system is stressed. The Remote medical monitoring system become essential and very important for patients who are on their own, and care providers to provide acute care. When the care givers fights everyday to save lives, we could help them to save time via digitalize the process and improve the efficiency. Microsoft has every tech muscle to make it happen, cloud, productivity software, AI, remote communication, if successful it would be huge positive outcome for everyone, particularly our brand. We are right in the epicenter of the outbreak in US, it’s a local issue and some organizations already take a leadership and jump on that , like UW Virology Lab and Gates Foundation. Microsoft would want to be one of the players trying to help.

**User Data Collection and Storage**

What data are we collecting?

* User first time assessment survey
* User daily symptom survey
* User daily vital signs entry
* User personal identification (i.e. email, social network accounts, phone)
* User location (precise location from device? Or user entered location?)

Who could view the data?

* User themselves
* Care providers or Public Health Agencies
* Other users online (only for the voluntarily shared data with user consent) – the map view

**Checklist**

* Run the idea by internal or external epidemiology expert and see if they like it
* User Survey - Are people willing to share? Run the idea with some of target audience see if what we are proposing here could be useful
* Data Architecture design
  + Analytic Data Storage / Privacy / PII management < GDPR alliance >
  + App Storage
  + Different Views of the data
  + Creating sample data
* Lock the content <survey, vitals to collect>

Link to the survey

Link to the statistic data view