# Employee Daily COVID19 Screener

## Submitter:

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## Project Team:

**Center for Digital Health Innovation:** Jerry Young, Product Lead; Eli Medina, Project Manager; Sondra Renly, Solution Architect; Olivia Bigazzi, Product Manager; Lauren Lee, Product Designer; Harris Durrani, QA; Rafael Bedoy, QA;
**Information Technology:** Julia Wallace, Manager, Integrations; Victor Galvez, Associate Director
**Occupational Health:** Hildegarde Schell-Chaple
**Clinical Innovation Center:** Ralph Gonzalez, MD, Chief Innovation Officer; Tim Judson, MD, Clinical Lead;

## Project Description

On March 13, 2020 in response to the coronavirus pandemic, the San Francisco Department of Public Health issued Order No. C19-06. This order required health screenings for all employees, clinicians, and necessary visitors before entering San Francisco hospitals and emergency department locations. Within 5 days we designed, built, and deployed a digital self-screening tool that employees could use before their shifts.

## Project Narrative

### Problem/Goals

On March 16, 2020 the UCSF Occupational Health team and volunteers started screening employees in-person at staff entrances to the Parnassus Hospital. The initial, manual screening process that was implemented was paper based, with employees lining up at our facility entrances before their shift. The lines grew quickly, exacerbated by the unusually cold temperatures and rain in San Francisco at the time. If an employee was deemed at risk for working, s/he had to turn around and go home after commuting in and waiting in line.

### Solution

In order to scale across our hospitals, maintain patient employee and community health, and minimize screening time and efforts to get cleared employees into the clinical areas, we created a digital self-screening tool that employees could use before their shifts. We utilized an existing vendor platform for virtual care from Conversa Health.

Employees are sent via email or text a daily reminder and a link to use the screening application. The application is accessible via a web browser on their computer or phone, ideally used before the employee leaves for work. After answering a series of questions, the app lets them know if they are cleared to come in, cleared but need to wear a mask, or required to stay at home. If the employee was cleared, a text or email is sent them containing a digital entry pass to be shown to the screening personnel at our facility entrances.

## Project Timeline

| Event | Date |
|---|---|
| **SFDPH announces screening requirement** | March 13, 2020 |
| **Project team assembled / Kickoff** | March 14, 2020 |
| **UCSF Occupational Health starts manual screening** | March 16, 2020 |
| **Employee Daily Screener MVP Pilot launched** | March 19, 2020 |
| **Employee Daily Screener general availability** | March 23, 2020 |
| **Employee Daily Screener adopted by UCSF Langley Porter Psychiatric Institute** | April 23, 2020 |

| **Employee Daily Screener expanded to campus (v2)** | May 18, 2020 |
|---|---|

## Collaboration

Several teams across UCSF plus key participants from the vendor collaborated to make this project a success. In addition to the core project team members from the Center for Digital Health Innovation, Clinical Innovation Center, Occupational Health, and IT, there was additional support from University Relations. This project took a very different approach to the typical waterfall project delivery methodology. Given the urgency of the problem, the teams were open to trying a much faster methodology geared to delivering quick results. The UCSF Center for Digital Health Innovation utilized disciplines of Lean Product Management, User Centered Design, and Agile Project Management to quickly deliver a minimum viable product in 5 days, while continuing to improve the product over the subsequent weeks.

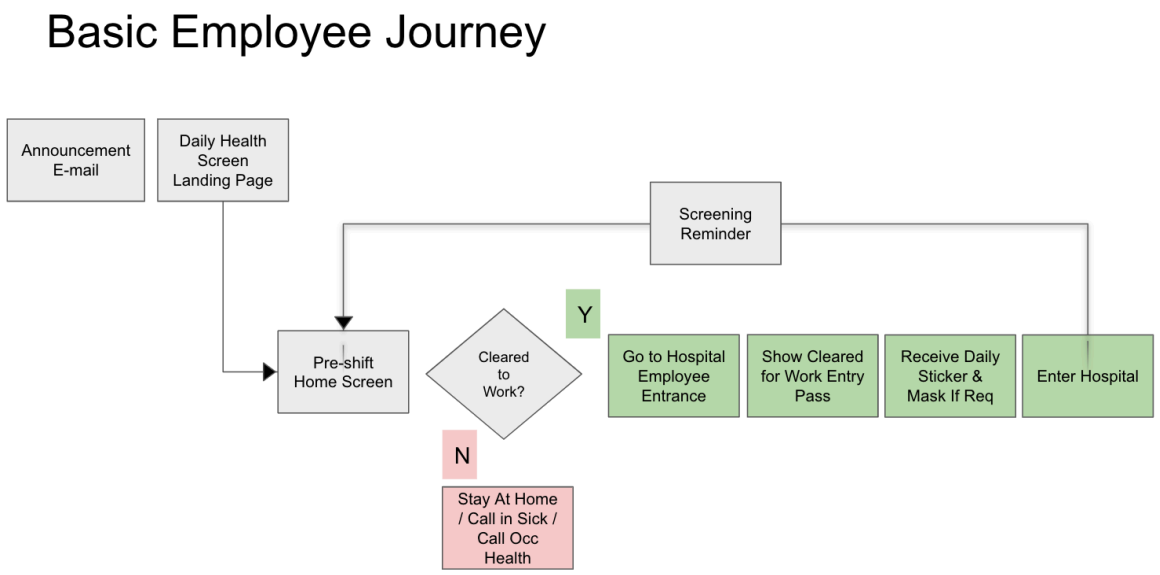
Specifically, we took the following steps:

- ✓ Identified specific area of need
- ✓ Assembled a cross-functional team led by Product Manager
- ✓ Conducted User research
- ✓ Prototyped & Tested for Usability
- ✓ Quickly launched focused, smallest valuable product (MVP)
- ✓ Instrumented & Iterated to improve product

## Technology

Conversa Health provides a programmable chat platform that can be used on a mobile phone, tablet, or personal computer. We had serendipitously vetted and selected Conversa Health in 2019 as part of another program to improve our virtual care program. Their platform enables a conversational workflow between clinicians and patients in an easy-to-use chat platform. It provides the ability to deliver educational materials, questionnaires, and reminders to patients, as well as the ability to provide a good user experience to obtain responses from patients. When the need to screen employees for COVID19 presented itself, we recognized that the Conversa Health, along with its platform, could also work with us to solve that problem. The innovation in this project was not in the use of the technology itself, but rather the disciplined, lean product management approach we took to quickly arrive at a working minimum viable product and the collaboration amongst our project team, the vendor, and our OSHA team. We were fortunate in having a technology partner that also utilized the same lean product development methodology.

UCSF has licensed our algorithm to Conversa Health due to the success of the employee screening tool and the speed at which it could be implemented. The algorithm has been turned into a commercially available Corona Virus solution and is available to other healthcare systems.




## Measure of Success

Data from the health screen is summarized and sent to hospital leadership each morning to inform staffing decisions. In the first 60 days since hospital-wide launch, 271,324 screens (average 4,522 screens/day) were completed. Completion rate was 97%. Of completed screens, 268,843 (99.1%) resulted in employees being cleared to work with no restrictions, and 654 (0.2%) resulted in employees being allowed to work with restrictions (e.g. needing a clearance letter from Occupational Health). A total of 1,453 screens (0.5%, average 24 screens/day) resulted in employees being asked to stay home from work.

We directly measured and compared the time required for individual employees to clear the front entrance screening desk by the manual screening process versus the digital screening process. Starting with an employee reaching the front of the line, the manual screening process took a mean of 48 seconds (n=28) whereas those having used the digital tool were cleared in a mean of 8 seconds (n=20).

During peak shift change, the average time waiting in line was reduced from 8 minutes 20 seconds to 1 minute 40 seconds. Based on these time savings and estimating 2/3 of employees entering during shift changes, we calculated that to date, this tool has saved employees over 15,000 hours of time waiting to be screened. With a reduced queue length, employees completing the digital screening at home also had reduced contact with other employees and screeners.

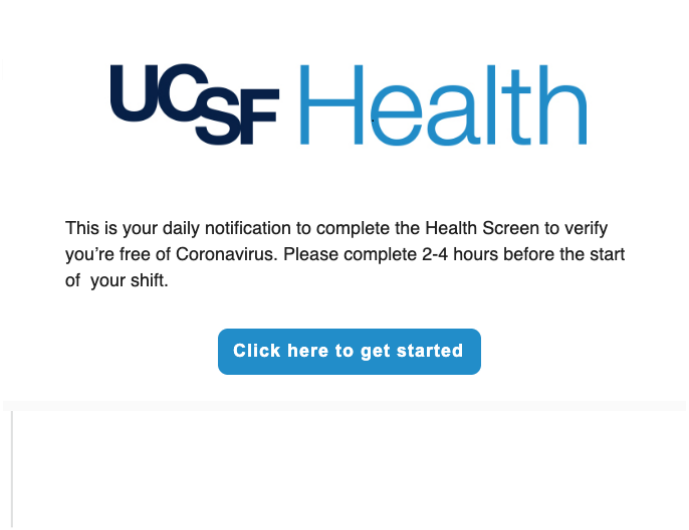
## Demo

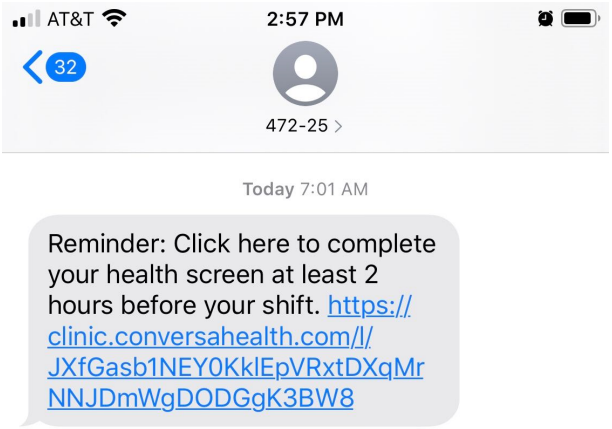
A demo of the commercially available version of the employee daily screening tool can be found here:

https://clinic.conversahealth.com/conversation/MTc4LTM0MDI

## Screenshots of UCSF Implementation

*Daily Reminders:*




*Current Entry Pass*