COVID-19 Symptoms Monitoring App Supports PHIA Surveys

Working in partnership with national ministries of health, Ciheb has helped conduct population-based HIV impact assessments (PHIAs) in countries supported by PEPFAR. These surveys provide critical information about the status of HIV/AIDS by estimating HIV prevalence, or the total number of people living with HIV (PLHIV) in a country.

Ciheb is engaged in two ongoing PHIAs: in Botswana, the Botswana AIDS Impact Survey V (BAIS V) and in Zambia, the Zambia Population-based HIV Impact Assessment (ZAMPHIA). Both surveys were originally scheduled to take place in 2020 but experienced delays due to the COVID-19 pandemic, pushing the implementation of both PHIAs into 2021.

COVID-19 created unforeseen challenges to the PHIA projects that threatened the health of survey staff and participants and required daily symptom monitoring. In response, Ciheb developed the UMB PHIA Companion Tool, a COVID-19 symptom screening app to support COVID-19 risk mitigation compliance for staff to use daily before training and field activities.
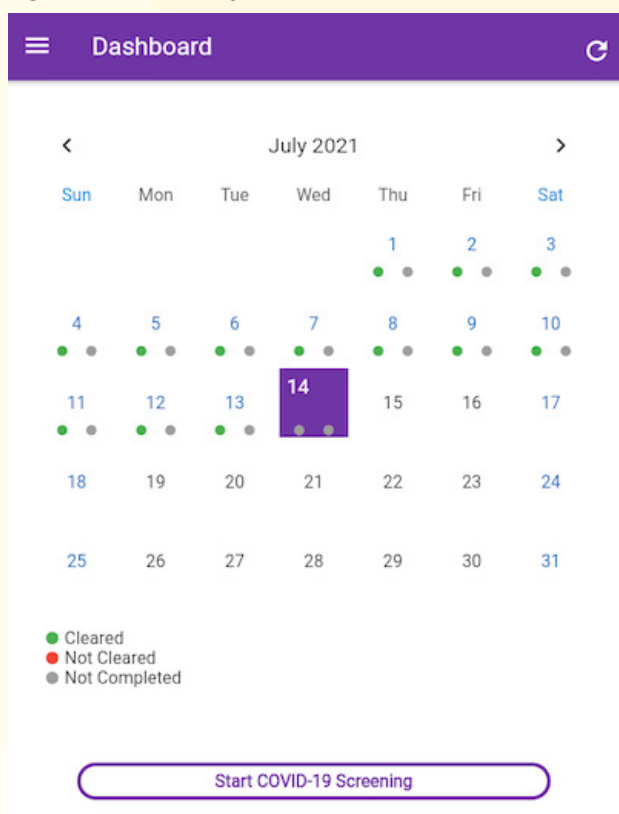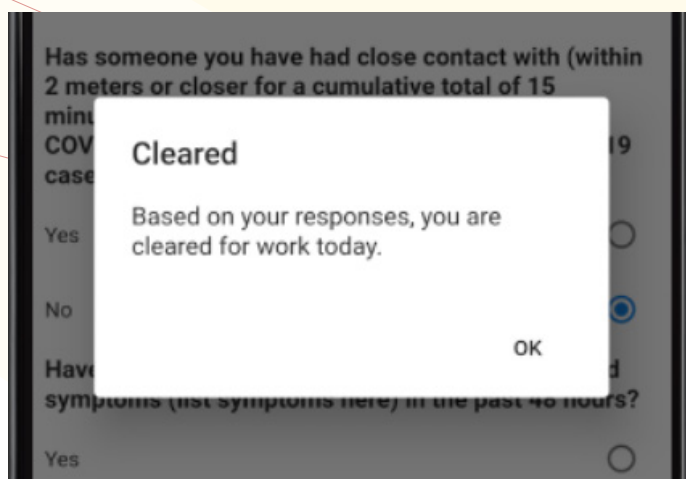
Figure 1. User interface dashboard

How it Works

The UMB PHIA Companion Tool provides daily monitoring of COVID-19 symptom screening and trend analysis. To get started, staff download the "CLT Symptoms Screening" tool on mobile devices from an app store, then create personal profiles and activate their accounts.

The user interface dashboard displays symptoms screening for each day of the month. There are three main colors for the symptoms screening results: "cleared" (shown by a green dot), "not cleared" (shown by a red dot), and "not completed" (shown by a grey dot). (Figure 1)

After filling out a short survey that covers symptoms consistent with COVID-19, contact with a known SARS-CoV-2 positive case, and personal recent test result status, the user is informed whether they are cleared for work based on their responses. (Figure 2)

Figure 2. Cleared for work screen

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Users also record their temperature and verify the results with their team lead or supervisor. Users must receive a green dot in the morning to proceed to work. The use of the color coded dots enables rapid review by supervisors to confirm screening completion and result, as well as for data monitors reviewing screening completion on the central repository each day. (Figure 3)

Figure 3. Dual dot completion for each day
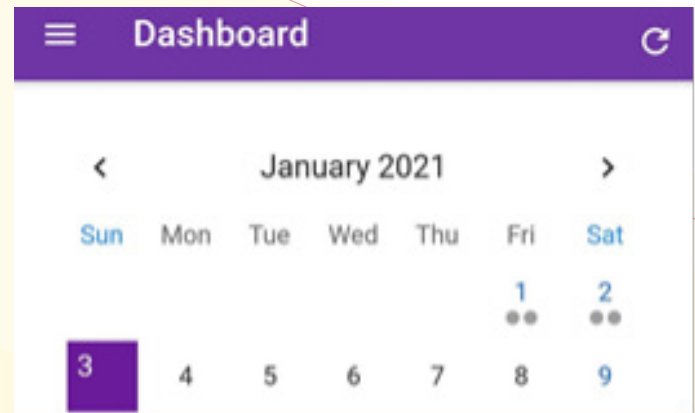
Developing the App

Ciheb developed the user interface of the UMB PHIA Companion Tool using a cross-platform framework providing support for Android and web platforms using the same code base. The dashboard was developed using Java.

Development began on December 18, 2020, went live on January 3, 2021, and is in use by UMB PHIA teams in the field, laboratories, and central offices where surveys are being performed. Ciheb staff developed the tool in just two weeks through agile methodology. They divided the task into sprints — after each task was completed, the team would test it, iterate, then work through the next task. App enhancement has continued through beta testing and survey data collection.

Lessons Learned

Agile methodology proved to be the right approach to building the UMB PHIA Companion Tool software on a tight schedule. Clear communication with stakeholders and team members was also helpful, as stakeholders provided guidance on what was needed, and team members understood where to individually focus.

The UMB PHIA Companion Tool can easily be scaled up to any size as needed and can be adapted to other projects or offices as needed.

UMB PHIA COMPANION TOOL IN SUMMARY

- App provides daily monitoring of COVID-19 symptom screening and trend analysis
- The app supports COVID-19 risk mitigation compliance for staff to use daily before training and field activities.
- Developed on Java and provides support for Android and web platforms
- In just over two weeks, Ciheb developed this tool through agile methodology from conception to field implementation

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