

A MOBILE APPLICATION TO ASSESS TIME IN CLINIC FOR PERSONS LIVING WITH HIV

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Background

- Long patient waiting time directly impacts patient satisfaction and may lead to lower patient retention in care.
- Time is a particularly important asset for wellbeing in Haiti. Incremental hours spent in clinic prevent patients, many of whom are earning hourly wages well below the poverty line,¹ from providing for themselves and their families.
- We developed an application to measure the time it takes patients to move between stations in the GHEKIO HIV clinic in Port-au-Prince, Haiti.



Figure 1: Patients waiting at GHEKIO.

Methods

- We developed a mobile application (app) to track patient time spent in routine HIV care at GHEKIO, in Port-au-Prince, Haiti. Use of the app was customized to reflect standard clinic procedures, including routine stations at which patients receive services as part of standard care.
- At the beginning of each visit, a QR code was printed containing each patient's clinic ID, which the patient carried with them, and which was scanned into the app to register patient time at three stations: (1) vital signs, (2) physician visit, and (3) check-out and transport fee reimbursement. Stations (1) and (3) captured start time at the station while (2) captured start and stop time. Community health workers, nurses, and physicians were trained to collect data using the app. Figures 2 through 5 below show sample screenshots of the application. Figure 7 shows a diagram of each of the measures taken.
- Data were stored on the phones and uploaded at the end of the day to a cloud server, which collated patient data from each station. A quality control process was implemented, consisting of daily data reports, trainings, and recurring meetings.

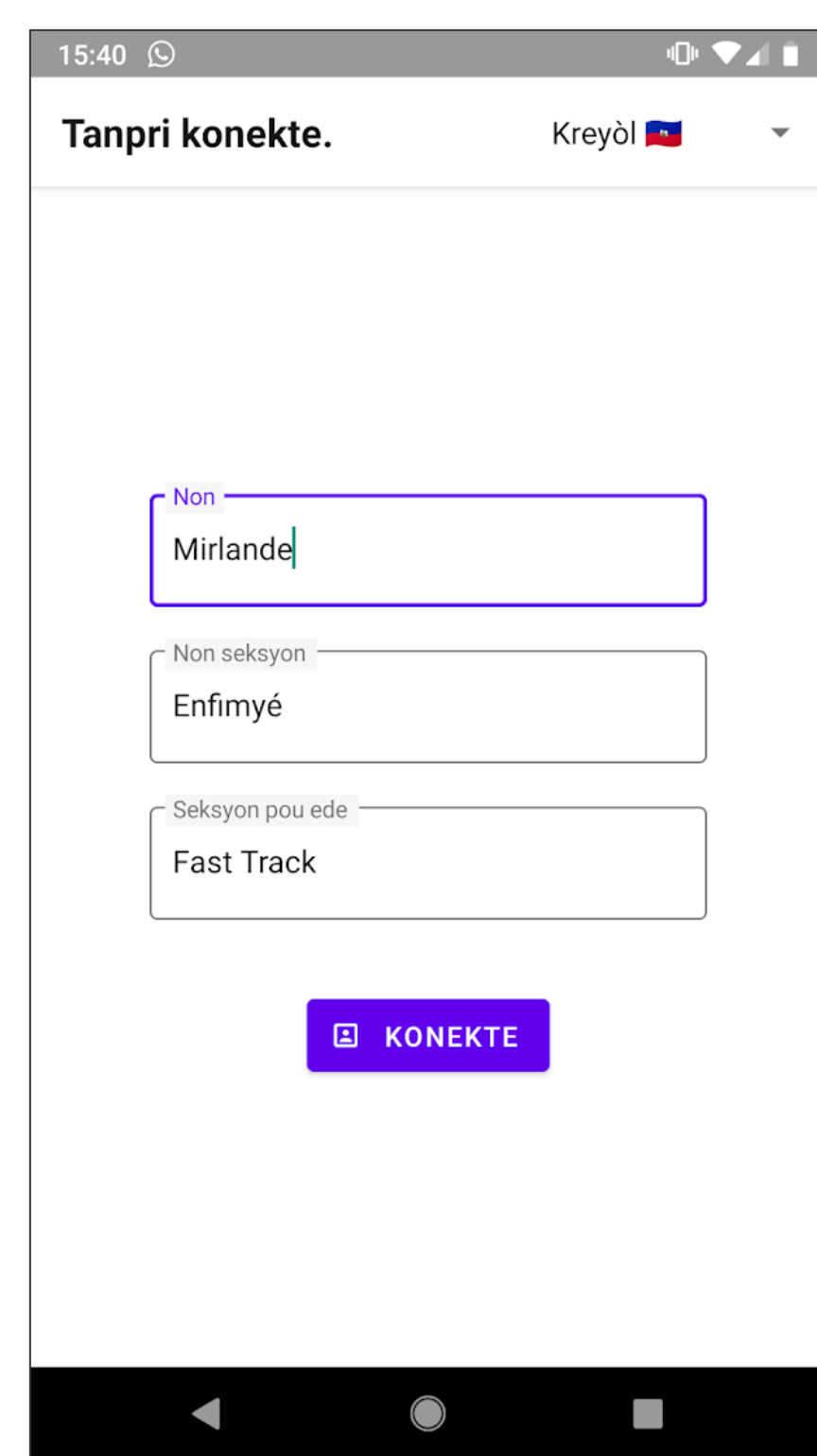


Figure 2: Application sign-in to a station within a clinic and facility.

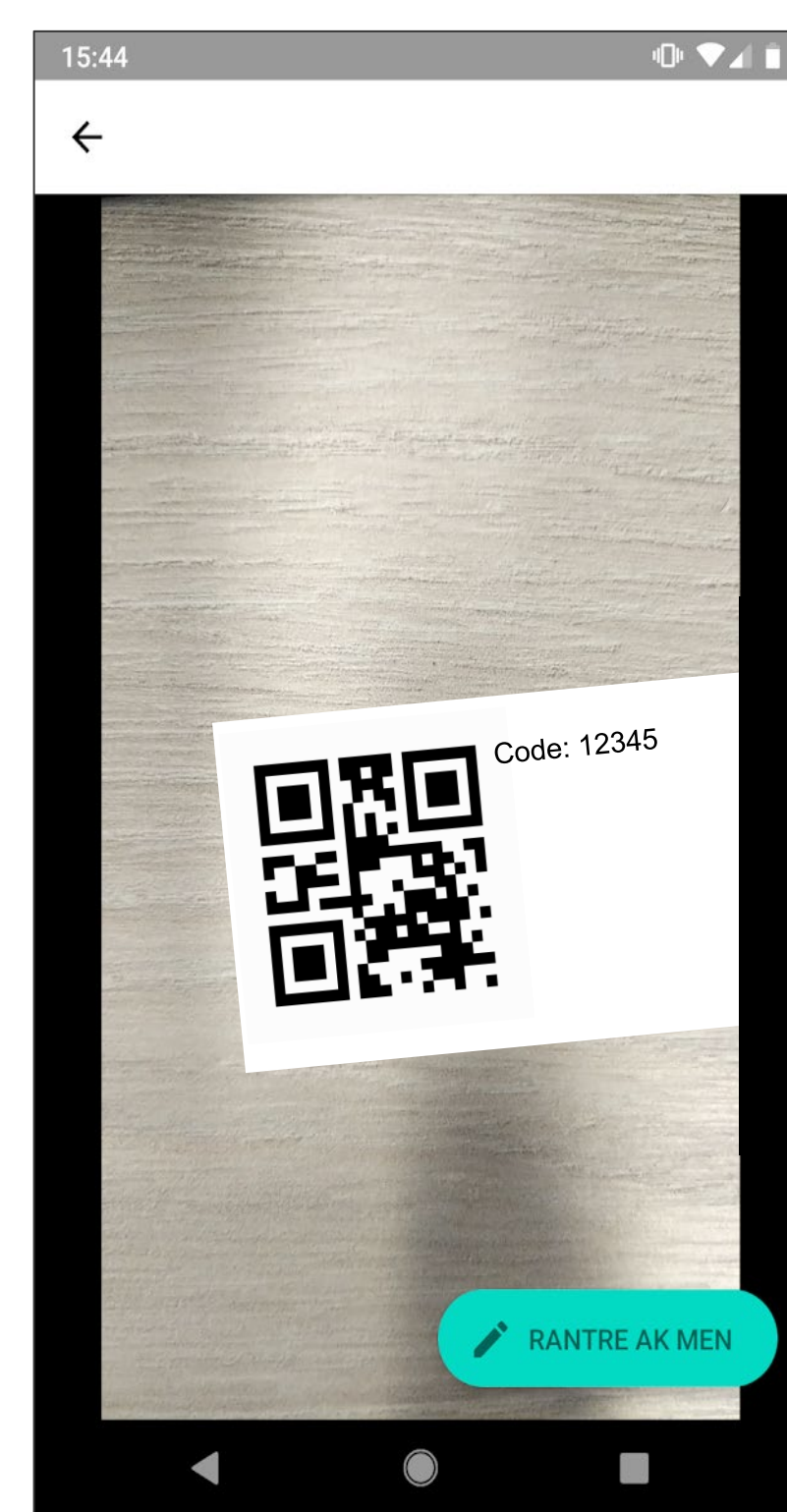


Figure 3: Scanning a patient's QR code to add them to a station.

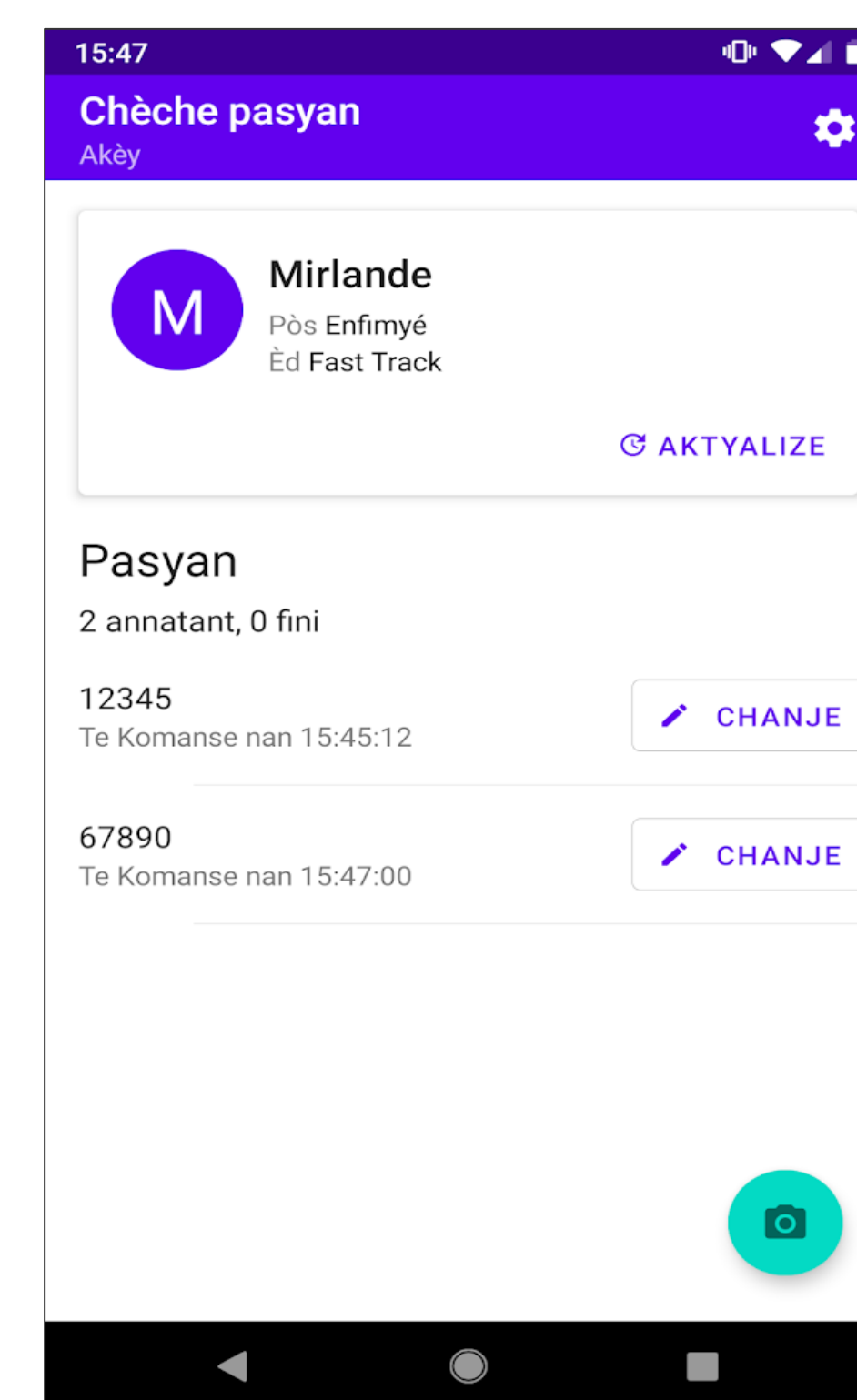


Figure 4: Patients queued at a specific station. The application permits editing a patient's information and uploading new patients.

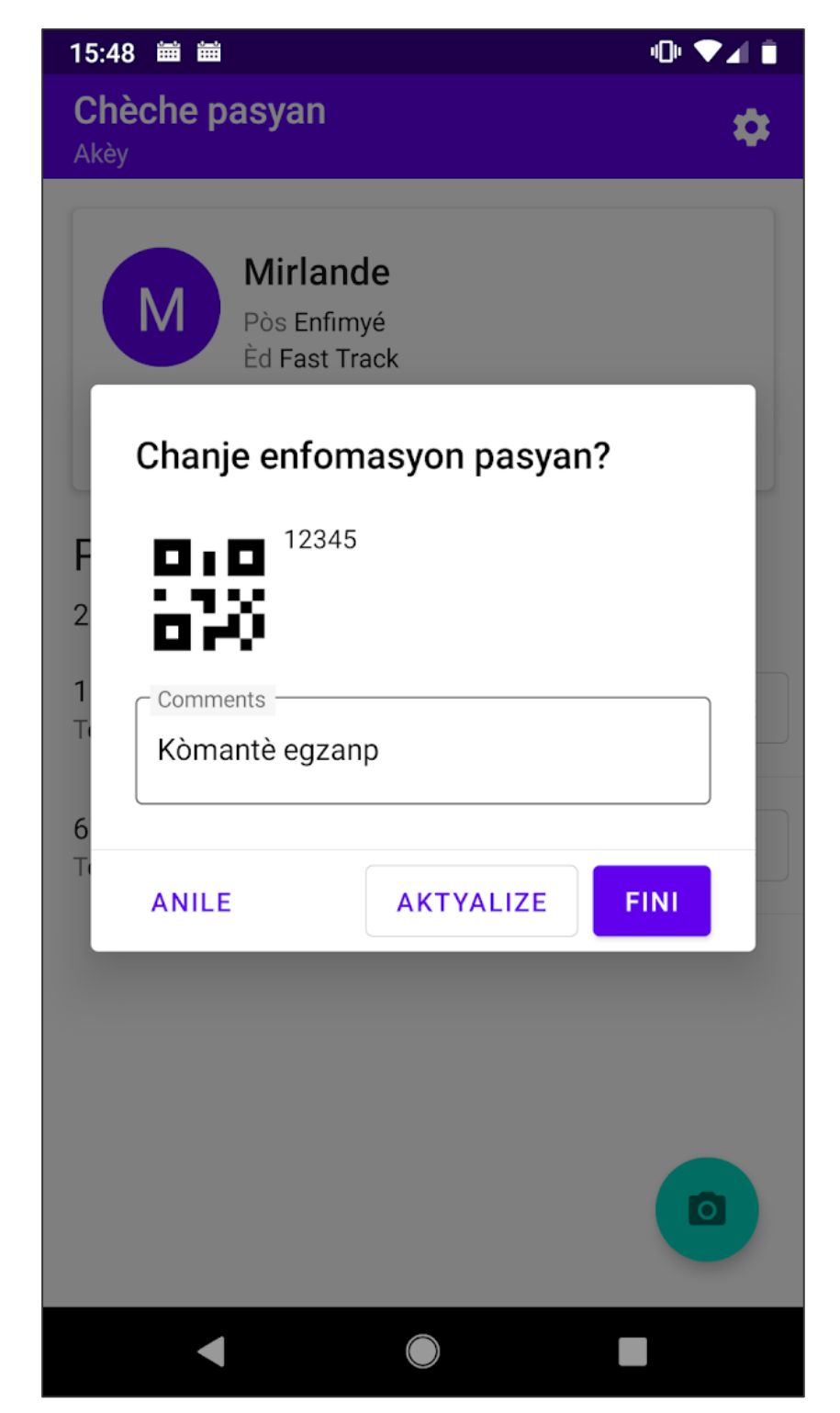


Figure 5: Ending a patient's wait time. Note that the application is available in multiple languages. The figure above is in Haitian Creole.

Results

- For the period of February 15th to April 29th, 2022, a total of 445 visits were tracked using the app; of these data, 343 visits passed data quality checks (i.e., start and end time for a visit was recorded in the app) and were analyzed.
- The median total time in clinic, from check in to check out, was 173 minutes (IQR: 137, 228).
- The median time from vital signs to physician visit was 78 minutes (IQR: 47, 111), approximately 45% of the total clinic time. The median time of a physician visit was 27 minutes (IQR: 19, 36), approximately 16% of the total clinic time. The median time between physician visit and transportation reimbursement was 51 minutes (IQR: 27, 99), approximately 29% of the total clinic time (Figure 7).
- The app is currently in its second version, is available in French, English and Haitian Creole, and is an open-source code available for use in other clinics.

445 Patient Visits Tracked in a ~1.5 Month Period.

The median clinic visit lasted 2 hours and 53 minutes.

The median physician visit lasted 27 minutes, suggesting that it is not the main time cost.

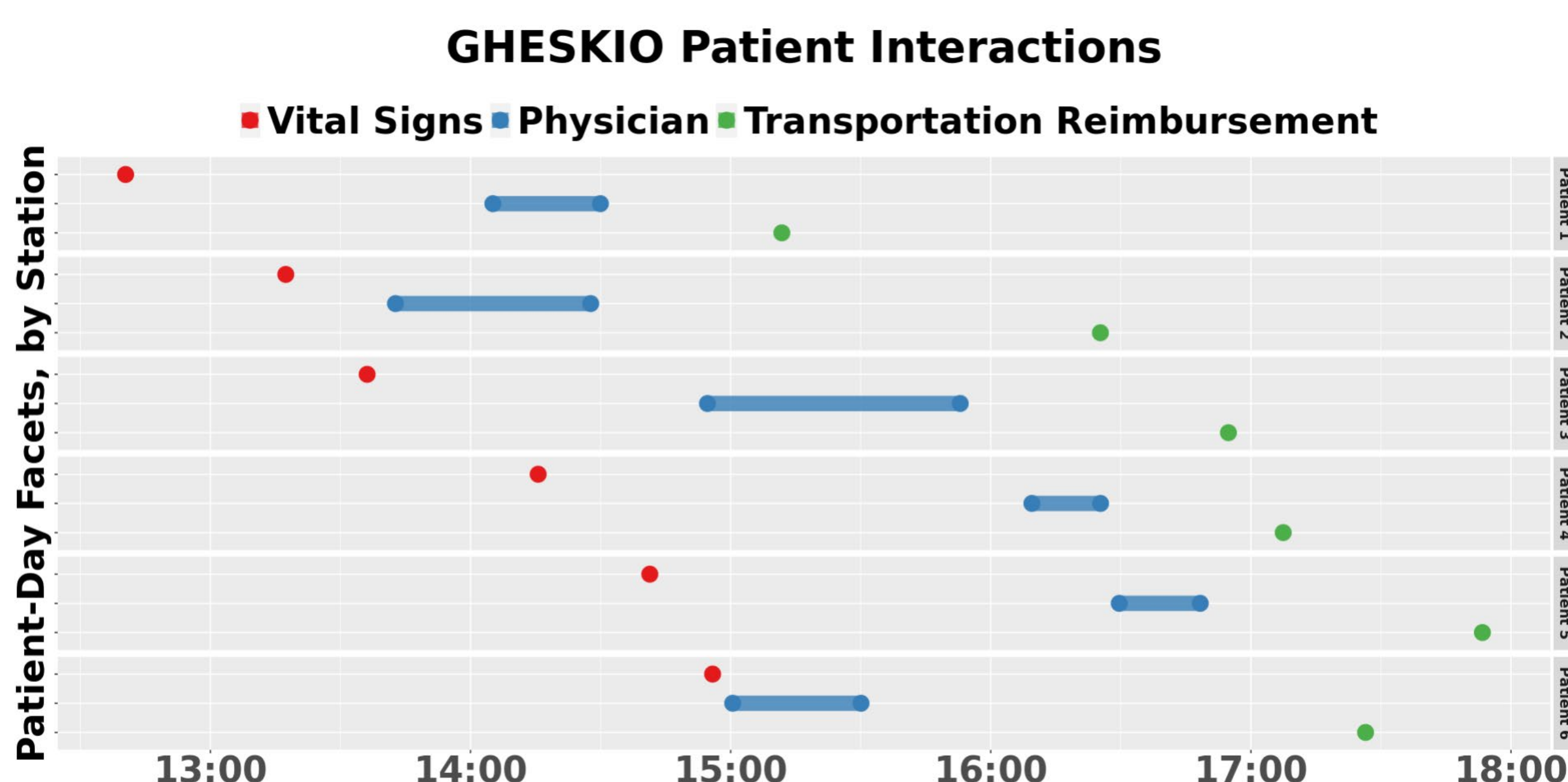


Figure 6: Select six patients' flow through the clinic on April 4, 2022.

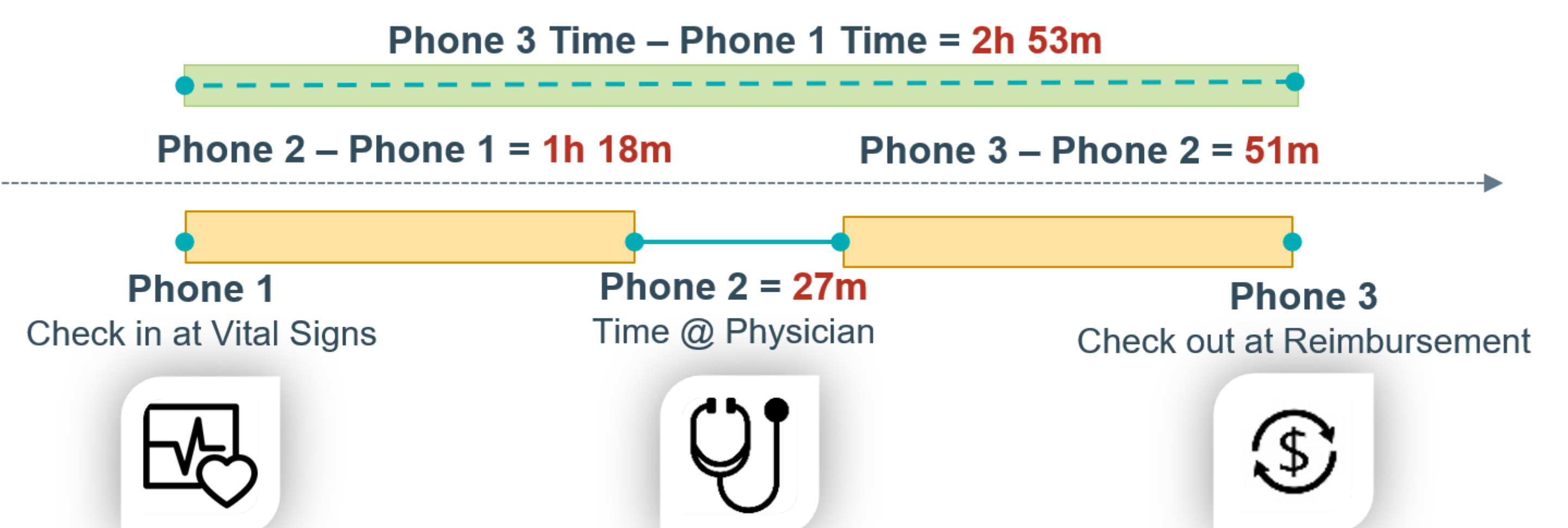


Figure 7: Median values measured at each phase of patient wait time.

Conclusions

- With the use of an app to monitor patient time in clinic, we have documented that the majority of time is spent outside of time with physicians.
- These data can be used to inform staff and facilitate efforts to reduce waiting time, which may positively impact patient outcomes. Further use of this app at additional stations throughout the clinic can provide increased precision for such efforts.