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#5370

User Perceptions of a Smartphone-based Malaria Rapid Diagnostic Test (RDT) aid for Community and Private Clinic-based Health Workers in Western Kenya.

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AUTHORS

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HealthPulse AI, when deployed as a smartphone app, holds potential as a feasible and locally-accepted malaria diagnostic tool for use among health workers, which can be scaled for broader impact.

BACKGROUND

- Malaria rapid diagnostic tests (mRDTs) are a **crucial diagnostic tool,** particularly where high-quality microscopy services are not readily available; although administration and interpretation errors can hinder their effectiveness.
- This study assessed the **feasibility** and **acceptability** of implementing *HealthPulse*, a smartphone mRDT reader app, among a cohort of community health volunteers (CHVs) and private clinic health workers (HWs) to **explore how a digital health solution may support health workers** in correctly performing and interpreting mRDTs in low-resource settings.

METHODS

- 203 CHVs and 23 private clinic HWs were recruited from five sub-counties of Busia County, Kenya to participate in the study using their personal smartphones [Figure 1].
- Utilizing a pre-and post-quantitative design, the study compared the accuracy of health worker mRDT interpretations before and after the *HealthPulse* app was introduced.
- Adherence to correct use protocols and health worker perceptions of the app were assessed using metadata and changes to mRDT implementation knowledge were measured through baseline and endline surveys.

RESULTS

- *HealthPulse* was well accepted among participants:
  - Most participants felt that the app was helpful to the diagnostic process [Table 1]; Most participants agreed that the app's features were user friendly [Table 2]
- Process data showed most tests were photographed within the recommended 30-minute time frame and were uploaded immediately.
- After using the app, health workers improved their mRDT knowledge, including knowing the required number of diluent drops and properly identifying strong positive and negative mRDT results from sample images. Fewer health workers accurately identified sample mRDT images that had light or very faint *P.f* lines as positive after the intervention.

CONCLUSION

- *HealthPulse* **holds potential as a diagnostic tool for mRDT testing by community and facility level health workers**. Results highlight additional app uses for supportive supervision, stock monitoring, and surveillance.
- Ongoing research is assessing ways in which *HealthPulse* can provide targeted supportive supervision for CHWs in other countries.

FIGURE 1. Study area.

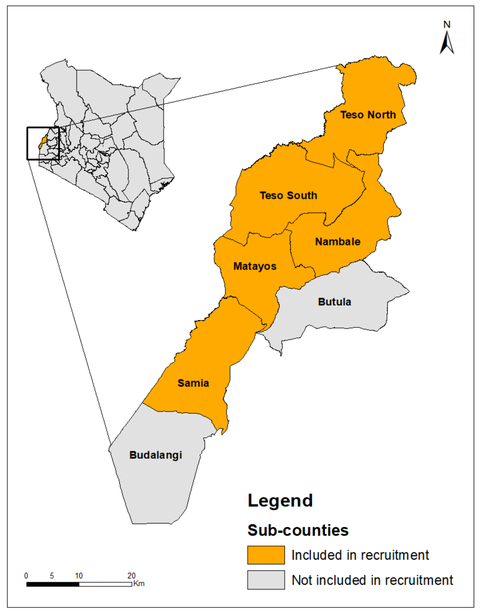

FIGURE 2. *HealthPulse* app workflow.

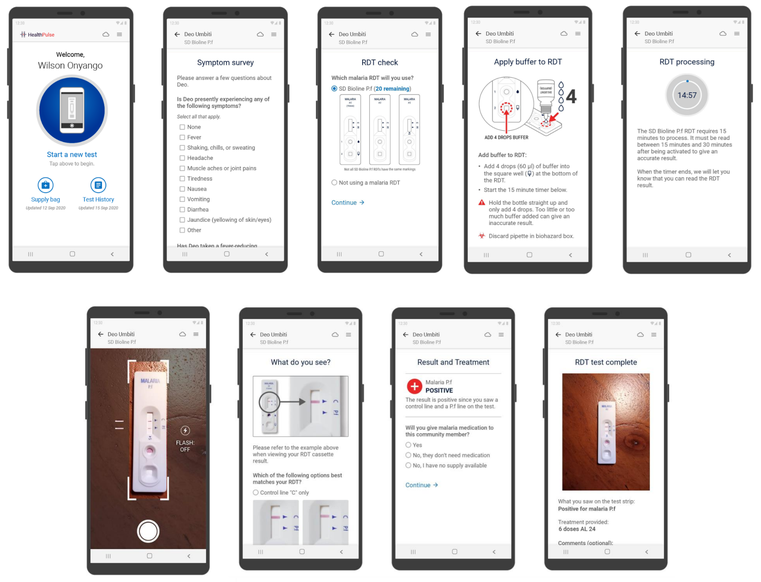

TABLE 1. *HealthPulse* acceptability results from endline survey.

Participant perceptions of the *HealthPulse* app	% Health Workers
Reported the app was useful	99.6%
Reported the app was easy to use	90.1%
Reported the in-app mRDT instructions were helpful	98.7%
Reported the app improved skills of mRDT administration/interpretation	95.1%
Preferred the app to paper tracking	91.5%

TABLE 2. *HealthPulse* feasibility results from endline survey.

Participant perceptions of the *HealthPulse* app	% Health Workers
hWs indicated they only had difficulties taking mRDT photos the first few times using the app	27.8%
Supply bag (RDT & med inventory) feature was easy to use	99.1%
Able to see app content easily	83.0%
Timer helped health worker to know when mRDT was ready	98.7%

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