Usability and Acceptability of an mHealth Platform for People Living with HIV in Washington, DC

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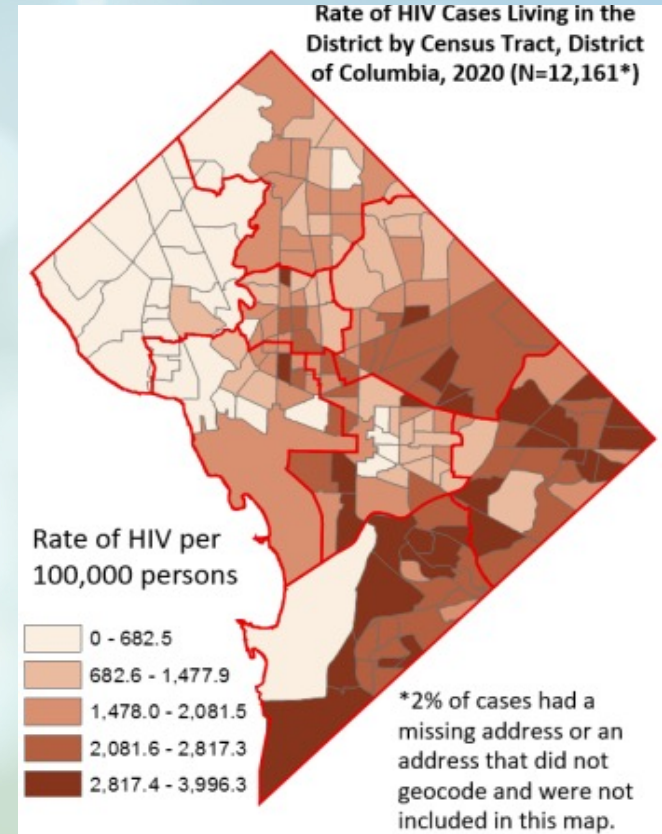(Research Scientist, University of Virginia, Charlottesville, VA, USA)

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D.C. HIV Statistics

- EHE – Priority Jurisdiction

- 12,161 (1.7%) PWH

- >50% of PWH are 50 yrs or older

- Sexual contact is the leading mode of transmission

Rate of HIV Cases Living in the District by Census Tract, District of Columbia, 2020 (N=12,161*)

Rate of HIV per 100,000 persons

- 0 - 682.5
- 682.6 - 1,477.9
- 1,478.0 - 2,081.5
- 2,081.6 - 2,817.3
- 2,817.4 - 3,996.3

*2% of cases had a missing address or an address that did not geocode and were not included in this map.

HAHASTA Annual Epidemiology & Surveillance Report 2021

The D.C. Cohort Study

- Longitudinal multi-site research study of PWH receiving outpatient care at 14 participating clinics in DC

- Goal: Improve quality of care and contribute to body of knowledge of HIV in DC

- Enrollment from Jan. 2011 – present

- >12,200 consenting PWH

THE **DC** COHORT
Advancing HIV Care and Treatment in the District of Columbia

The D.C. Cohort Study

- Database of HIV patients receiving outpatient care inclusive of treatments, diagnoses, lab results, procedures

- Monthly upload of data from sites EMRs

- Active CAB participation

- Close collaboration with DOH; periodic linkage of cohort data and DOH HIV, STD, and other infectious disease databases
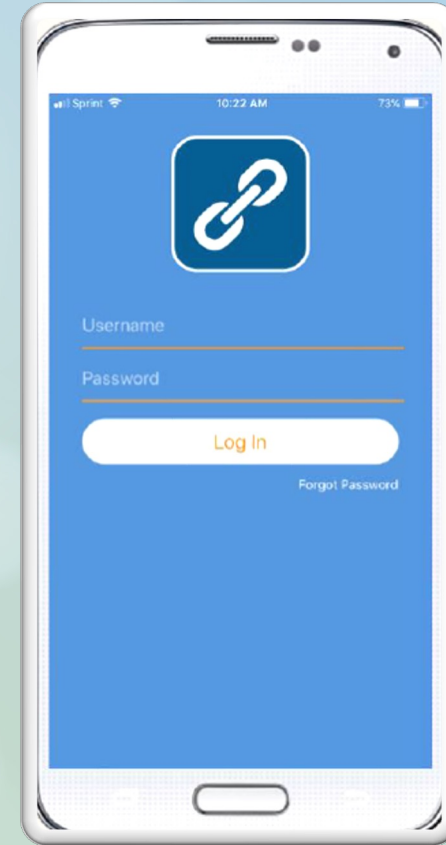
THE **DC** COHORT
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PositiveLinks (PL)

- mHealth app for PWH to improve RIC
- Increased VS and CD4
- Mainly in non-urban settings
- Used by patients and providers
- Endorsed by: CDC, NASTAD, HRSA

PL in the DC Cohort (1R01MH122375-01A1)

- Hybrid effectiveness-implementation design
  - Effectiveness of *PL* on HIV related outcomes (i.e., VS and Retention in care)
  - Implementation using CFIR and RE-AIM
- Cluster randomized trial at 12 Cohort sites
- Three aims
  - 1: Mixed methods formative work to tailor *PL* for DC population
  - 2: Cluster Randomized Efficacy trial
  - 3: Implementation evaluation

Methods: Aim 1 – Beta Testing

- Recruited PWH from participating sites
- Eligibility: Enrolled in DC Cohort, English or Spanish speaking, 16 or older
- Beta testing: Provided access to PL app for 1 month period
- Data collected
  - Demographics
  - App usage
  - System Usability
  - In-depth interviews

Table 1. Beta Testing Participant Demographics, N=14

Characteristic	Number	Percentage
Male	9	64%
Non-Hispanic Black	9	64%
Age in years (mean, range)	49	20-74
Education (HS/GED)	5	36%
State of Residence (DC)	13	93%
Spanish speaking	2	14%

Table 2: Selected Measures of App Usage

	Mean	SD	Median	Q1	Q3
Response Rate	71.29	35.38	96.5	50	100
Medication Adherence	72.14	33.11	90.5	55	100
Average Mood	1.92	1.98	2	0	3
Average Stress	3.38	2.02	4	1.5	4
Quiz Response	4.57	2.66	5	2	6
Community Post	2	2.51	1.5	0	2
App Launches	42.57	23.31	40.5	21	60.5
Messages Received	4.43	2.16	4	3	5.75
Messages Sent	4.29	3.39	3.5	2	5.75

Figure 1: App Use Acceptability

- # System Usability Scale
    - ## 10 item questionnaire
    - ## 5 possible responses
        - ### Strongly agree – strongly disagree
    - ## >68 indicates above average usability

- # PL SUS Score = 77%
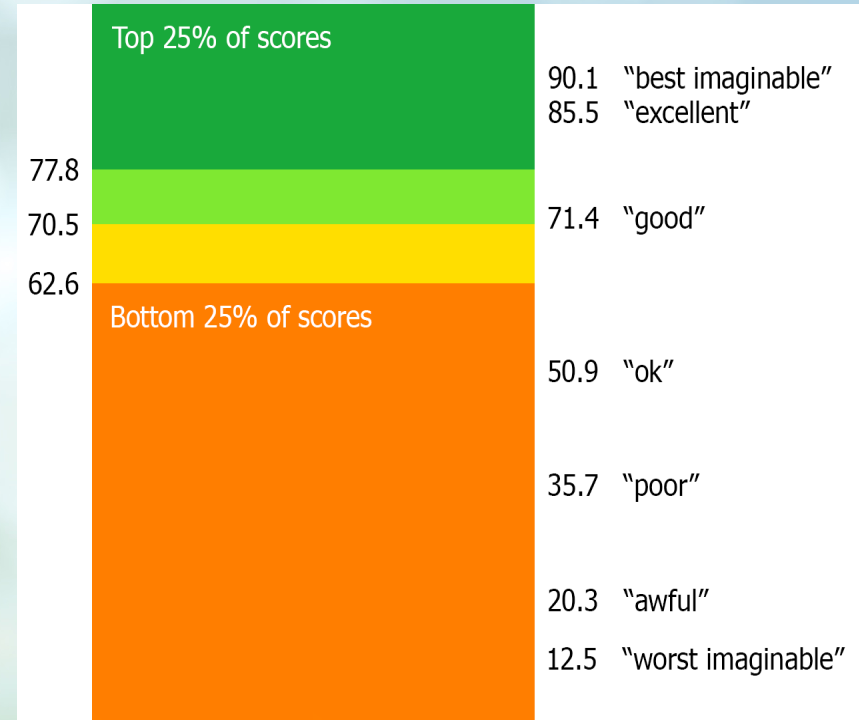
Qualitative Findings from Beta Testing

- Exit interviews n=14

- Records, transcribed, entered into Dedoose

- 4 coders, each transcript coded by minimum of 2 coders

- Codebook developed via iterative method

- Overall 84% agreement level

Qualitative Findings from Beta Testing

- Five major themes (code presence)
  - Likes of the App (14)
  - Dislikes of the App (14)
  - App Communications (14)
  - Technical Issues (14)
  - Suggestions (12)

Table 3: Qualitative Findings from Beta Testing Exit Interviews, N=14

Most Applied Codes	
Code	**Number of Applications**
"Likes" of the app	52
Daily Reminders	23
Medication/mood/stress	21
Suggestions	35
"Dislikes" of the app	23

Representative Quotes from Qualitative Analysis

"There's nothing that I don't like or that doesn't look good to me. Everything is fine."

"I liked that it was simplified, simple explanations like under lab results, the answers to those frequently asked questions, explain HIV and just everything it was just simple it wasn't overwhelming I really like that."

Representative Quotes from Qualitative Analysis

"So I was thinking maybe if there is an option where the person can opt for how many reminders they might want or how long a reminder hangs around or something like that, I'm not sure if that's an option or not."

Discussion

- Demographics mirror HIV population in Washington D.C.

- App response rate = 71.29 / Adherence rate = 72.14

- SUS indicates high usability

- Most discussed theme: "Likes of the app" & "Suggestions"

Next Steps

- Finalize analysis of Aim 1 substudies

- Efficacy trial (Aim 2) currently under way

  – 6 of 12 sites launched

    - 4/6 intervention sites

    - 2/6 control sites

- Implementation data on clinic services and providers collected concurrently with Aim 2

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