Harnessing Digital Health Technologies to increase access to antiretroviral therapy in Kampala, Uganda; The ART ACCESS Application

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Mission: To strengthen health systems in Africa, with strong emphasis on infectious diseases, through research and capacity development

Governance: Autonomous Ugandan not-for-profit wholly owned by Makerere University ... independent Board of individuals ... not bound by university rules

Strategic Plan: Supporting national policies ... contributing to their further development

Genesis: 15 years old; established with Pfizer funding – ended 2012
IDI programmes...

• **Clinic**: HIV national referral centre; over 7,000 ‘Friends’ (clients) currently treated free; developing models of care

• **Outreach**: over 230,000 PLHIV currently supported (over 20% national effort) through district health systems strengthening; including refugees

• **Training**: 27,000 trained in clinical / management skills; team training; eLearning; free phone-in support

• **Research**: over 650 publications in peer-reviewed journals; research capacity building
IDI programmes...

• **Lab services**: US-accredited lab; translational lab; lab training; lab outreach

• **Global Health Security**: building national capacity to prevent, detect, respond and research

• **Ugandan Academy for Health Innovation & Impact**: PPP with Johnson & Johnson
The IDI-Kampala HIV/AIDS project

- A PEPFAR/CDC funded 5 year grant (April 17 - Sept 2022)

**Goal:** Accelerate epidemic control in Kampala region of Uganda through scale up of evidence based and high impact interventions towards achievement of UNAIDS 90:90:90 targets, and strengthening National, district, and community health structures

- Health systems strengthening approach based on WHO building blocks

- 141 HFs supported with 207,543 PLHIV on ART (June 19)

- Region implements DSDM through community & facility models
  - 43% on Facility Based Individual Management-FBIM
  - 38% on Fast Track Drug Refill
  - 19% on various community models (CDDPs, CCLADs, and variations of both)
  - 92.6% Viral suppression
Community private pharmacy ART Refill model

A voluntary HIV care model which engages six (6) selected private pharmacies within the city as community ART refill points for stable PLHIV under IDI-KCCA care.

Model supports 4 high volume mid-level urban public HFs (with total 32,928 on ART at all 4 sites).

Started Nov 2016 to address facility congestion, long waiting time, and patient attrition at 4 priority sites.

Enrolled clients are seen by a nurse

9057 (30% males) PLHIV active on model

All attend their primary HF semi-annually
Community private pharmacy ART Refill model

Patients are regarded stable for this programme if they:

- are older than 20 years
- are not suffering from major a OI
- are not pregnant
- had two viral load suppressions
- receive first line antiretroviral HIV medication for > 2 years
- have good adherence levels
- do not have a child that receives treatment in the facility
- have two or more phone contacts that are working
ART Access App developed with MCR DFID Wellcome Trust Health Systems Strengthening grant

- Based upon pharmacy refill DSDM at IDI clinic*

AND

- IDI KCCA community pharmacy refill process (paper based)

Conceptual Framework

Context
- Overcrowded health centres
- Frequent ART stock outs (leading to shorter refill times)
- Capacity within community pharmacies
- Increased coverage of phones/internet

Effects
- Health care worker burn out/stress
- Increased risk of drug errors/PLHIV lost to follow up
- High cost of transport and lost time at work for PLHIV
- Underuse of community pharmacy network

Intervention principles
- Develop model to decongest health centres
- Develop model that use mHealth for data collection/algorithms to improve safety/recording

1. Develop ART Access App with stakeholder input
2. Evaluate feasibility and acceptability and safety of ART Access App
3. Evaluate outcomes of ART Access App with other tools in full scale trial
Iterative APP development process

Version one
- Iterative meetings with developers
- Research content availed to developers

Version two
- Implementation team tool review and input
- Integration to HMIS/OpenMRS

Version three
- Tool presentation to nurses, pharmacists and H/C admins
- Structured/unstructured observations with IDI nurse dispensers, Pharmacists, H/C admin

Version four
- HIGH LEVEL MEETING WITH KCCA/MOH
- USSD integration
- ELINS integration

Version five

ART Access and the Uganda EMR
Progress so far

• App development started in 2017
• Roll out Jan 2019
• 3 community pharmacies
• 2 KCCA facilities
• Over 4,892 (50.2%) patients have transferred from paper to app
Paper based refill program

1. Eligibility Form

2. Enrollment log

3. Eligibility form in patient file

4. Eligibility form entered to DB at IDI

5. Community refill register updated at IDI

6. Community refill visit entered in register at pharmacy

7. IDI Database updated every Friday

Health Facility

Community pharmacy

IDI
ARTAccess components

- Pharmacy landing page
- Pharmacy refill page

- Health facility landing page
- Health facility refill eligibility form

- Admin landing page (IDI)
- Admin report generation

Web and Phone versions available
Refill pharmacy dispensing interface

KAW/CP2/00339, Regimen: AZT/3TC/EFV

- Have you dispensed any Other Drugs?*
- Have ARVs been dispensed?*
- Does the patient have any complaints?*
- If patient has any of these complaints, please refer the patient to health facility*
- Is the patient scheduled for today’s visit?*
- Is the patient represented?*
- Any reason to discontinue the patient?*
- Next Pharmacy Visit*
- Next Facility Visit*
- Name of Pharmacist*
- Is there any other reason to refer the patient to health facility*

--- select ---

--- select ---
Smartphone app version

Login to ART Access

Username: pharmacist
Password: 

Login

FORGOT CREDENTIALS

Regimen
3TC/AZT/NUP

Give Septrin
Yes

Length of Refill
2 Months

Next Visit Date
29/4/2018

UPDATE PRESCRIPTION

Search Patient

Enter Patient ID/Phone number or name to search

Patient ID:
123WXGHH

SEARCH
Time and motion study

- 117 patients (75 on the app and 42 on the paper-based system) at 3 pilot pharmacies.

Waiting time:
4.5(0.9-15.0)

Drug Refill time:
4.2(2.7-6.1)

Time to exit:
1.5(0.8-2.6)

Waiting time:
1.2(0-7)

Drug Refill time:
6.6(4.7-9.7)

Time to exit:
0.6(0.1-1.8)

P<0.001
P=0.001
P=0.0003
Next Steps

- Further investigation on waiting time/exit time
- Longer follow up to allow for evaluation of safety (removal from community programme, lost to follow up)
- Scale up in KCCA facilities as appropriate
- Addition of stock management module
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IDI-KCCA Project

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