LINK4HEALTH

Evidence-Based for Structural Intervention
Evidence-Based for Retention in HIV Care

INTERVENTION DESCRIPTION

Goal of Intervention
- Increase linkage to care within one month of diagnosis and retention in care at 12 months

Target Population
- Adult clinic patients newly identified with HIV

Brief Description

Link4Health is a multicomponent intervention that uses five evidence-based strategies targeting structural, biomedical and behavioral barriers. The first component consists of point-of care CD4 count testing performed immediately after an HIV-positive test in the same physical location as the HIV testing site. The second component involves accelerated ART initiation for eligible patients that involves two counseling sessions and ART initiation within the first week after linkage to care. The third component uses short-message service (SMS) appointment reminders sent from a central server. SMS reminders are sent 3 days prior to the appointment and after a missed appointment. The fourth component consists of a health education package that includes health information and supplies such as soap, a toothbrush, and a pillbox. The fifth component involves financial incentives of modest amount (i.e., prepaid mobile phone card valued at US$8) that are provided to reimburse patients for expenses or lost wages or transportation costs for clinic attendance.

Theoretical Basis
None reported

Intervention Duration
- One year

Intervention Setting
- HIV clinics

Deliverer
- HIV clinic staff

Delivery Methods
- Counseling
- Financial incentives
- Health education package (health information and supplies)
- Point-of-care CD4 test
- Text messaging

Structural Components

- Access
  - Offered point-of-care CD4 cell testing in the same physical location as the HIV testing site
  - Provided condoms in the health education package every three months at clinic visits
- Physical Structure – Integration of Services
  - Point-of-care CD4 cell testing was provided in the same physical location as the HIV testing site

INTERVENTION PACKAGE INFORMATION

An intervention package is not available at this time. Please contact **Margaret McNairy,** Weill Cornell Medical College, 525 East 68th Street, New York, NY 10065.

Email: **mam9365@med.cornell.edu** for details on intervention materials.

EVALUATION STUDY AND RESULTS

Study Location Information

The original evaluation was conducted in Swaziland between August 2013 and November 2014.*

Key Intervention Effects

- Increased retention in HIV Care

Recruitment Settings

HIV community testing sites

Eligibility Criteria

Men and women were eligible if they were aged 18 years or older, newly tested HIV positive, were willing to receive HIV care at the study unit, and willing to consent to study procedures.

Study Sample

The baseline study sample 2,197 participants is characterized by the following:

- *59% female, 41% male*
- *Median age of 31 years; 20% were young adults aged 18-24*
- *55% secondary or higher education, 45% primary or no education*
- *54% received first HIV test during study*
- *89% received first positive HIV test during study*

Assignment Method

The study unit reflects the ongoing process of decentralizing HIV care from larger or secondary HIV clinics to smaller or primary-level HIV clinics in Swaziland. The study unit consists of a secondary HIV clinic paired with an affiliated primary-level HIV clinic. Ten study units were pair matched by implementing partner, location (urban vs rural), and clinic size, based on the estimated number of adults testing positive in the 2 years prior to study implementation. Matched study units were randomized by a computerized random generator to 1 of 2 study arms: Link4Health (5 study units; n = 1,096) or standard of care (5 study units; n = 1,101).

Comparison

The standard of care comparison adhered to procedures according to existing country-based guidelines at the time of the study. The guidelines for individuals identified as HIV positive at testing sites included post-test counseling and referrals to an HIV clinic using a national referral form. At the first HIV clinic visit, standard of care comparison participants presented their referral form, received a clinical assessment, had blood drawn for CD4+ count test, hematology, and chemistry tests, and were instructed to return in 1-2 weeks for results. At the return visit, participants eligible for ART (i.e., those with a CD4+ count ≤ 350 cells/mm3) received the first of 3 counseling sessions on accelerated ART initiation, and were instructed to return to the clinic every month for 6 months, and then every 3 months. Participants not eligible for ART (i.e., those with a CD4+ count > 350 cells/mm3) were instructed to return to the clinic every 3 months for follow-up. All participants were prescribed cotrimoxazole prophylaxis, and had access to condoms and health information materials at the clinics.

Relevant Outcomes Measured

- The primary outcome was a combined outcome of linkage to care within 1 month of HIV diagnosis and being retained in care 12 months after diagnosis, and included the following definitions:
  - Linkage to care was defined as participant attendance of at least 1 visit to an HIV clinic with completion of an intake assessment including medical history and physical exam.
  - Retention in care was defined as no documented death and a clinic visit at the study unit within 90 days prior to the end of the study follow-up period.
- Viral suppression was defined as HIV 1 RNA < 1,000 copies/mL at 12 months among patients on ART for at least 6 months
- ART initiation was measured as the time from testing HIV positive to initiating ART among patients who were ART eligible

Participation Retention

Because participation retention is not a criterion for evaluating structural intervention studies, PRS does not evaluate this information.

Significant Findings on Relevant Outcomes

- A significantly greater percentage of participants in Link4Health clinics were linked to care within 1 month of HIV testing and were retained in care at 12 months than participants in standard of care comparison clinics (64% vs 43%; RR = 1.48, 95% CI = 1.37 – 1.61, p<0.001; adjusted RR = 1.50, 95% CI = 1.12—1.99, p = 0.009). The adjusted RR reflects accounting for clustering and differences in covariates (i.e., employment status, number of children, whether the participant lives alone, HIV testing location, family member with HIV, travel time to clinic, and whether this was the participant's first HIV test).
- A significantly greater percentage of participants in Link4Health clinics were retained in care at 12 months after HIV testing, regardless of the time to linkage and ART status, than participants in standard of care comparison clinics (66% vs 45%; RR = 1.48, 95% CI = 1.18 – 1.86, p = 0.002).
- Among ART eligible participants, participants in Link4Health clinics initiated ART sooner than standard of care comparison clinics (median (IQR): 7 days (3.0—12.0) vs 14 days (7.0—31.0), p < 0.001).

Considerations

- There were no significant intervention effects for the linkage to care (p = 0.13), time from HIV testing to linkage to care (p = 0.189), viral suppression (p = 0.55), or mortality, measured as total deaths within 12 months of HIV testing (p = 0.41)

- Link4Health is considered evidence-based only for retention in care because there were no significant effects for linkage to care as an outcome separate from the combined outcome.

Funding
National Institutes of Health (grant number RO1A100059)
Gates Foundation (grant number OPP1145477)

*Information obtained from the author.

REFERENCES AND CONTACT INFORMATION

McNairy, M. L., Lamb, M. R., Gachuhi A. B., Nuwagaba-Biribonwoha, H., Burke S., Mazibuko S., . . . El-Sadr, W. M. (2017). Effectiveness of a combination strategy for linkage and retention in adult HIV care in Swaziland: the Link4Health cluster randomized trial. *PLoS Medicine, 14*(11): e1002420.

Researcher: **Margaret (Molly) McNairy, MD**
Weill Cornell Medical College
525 East 68th Street
New York, NY 10065

Email: **mam9365@med.cornell.edu**