New Technologies and Innovative Methods to Facilitate HIV Prevention, Testing and Care

Jeffrey D. Klausner, MD, MPH
Professor of Medicine and Public Health
Attending Physician Ronald Reagan Medical Center
Division of Infectious Diseases: Global Health
David Geffen School of Medicine
Karin and Jonathan Fielding School of Public Health

World STI and HIV Congress, Brisbane
Thursday Sept 17th, 2015
9:30-10:00 am

Disclosures
- Dr. Klausner is a faculty member of the University of California Los Angeles
- Dr. Klausner is a board member of YTH Inc, non-profit
- Dr. Klausner is an unpaid medical advisor for Healthvana.com
- In the past 12 months:
  - Research funding or donated supplies from the US NIH, US CDC, AIDS Healthcare Foundation, Gilead Sciences, Hologic, Alere, Syva, Chembio, Cepheid and MedMira
  - Speakers bureau: None
  - Advisory board: None
  - Consultant activities: AIDS Healthcare Foundation, Flora Biosciences, Serdent Research, AIDS Project Los Angeles

The Future of Healthcare is Mobile

Primary Prevention
- Exposure reduction
  - Education and health promotion
    - Delaying sexual debut and partner reduction
  - HIV and STD serosorting
  - Condom use
This is a description of the images and text content:

**1. HIV and STD status sorting**
- Social network apps
- Self-report
- Healthvana
- Verified

**2. Playing it Safe—online game**
- The game focuses on:
  - Prevention on condoms
  - HIV: provide safer sexual behaviors
  - Prizes and lotteries for material and non-material rewards
  - Regularly screen for HIV/STIs
  - Stay free of HIV and other STIs

**3. I Got Your Back**
- A gamified intervention to encourage MSM aged 18-35 to:
  - Recruit members of their social network
  - Adopt safer sexual behaviors
  - Regularly screen for HIV/STIs
  - Stay free of HIV and other STIs
- The intervention will include prizes and lotteries for material and non-material rewards, with probabilities that are affected by participants' individual and collaborative actions (via a point system), with participants' rankings displayed on a leaderboard.

**Additional Images and Text**
- Slide courtesy of Sandi McCoy, UC Berkeley
- Funding: BMGF and ISP Mexico
- McCoy et al. NIMH 1R34MH106359-01A1
- Handwash in Zambia were recruited to educate their customers on HIV/STI prevention

---

Society for Family Health (SFH)
- Dr. Lisa Hightow-Weidman, UNC

[Poverty Action Lab Evaluation](http://www.povertyactionlab.org/evaluation)
[Role-incentives distribution public goods Zambia](https://www.caktusgroup.com/blog/2015/06/19/epic-allies-featured-mhealth-duke-2015-conference/)

---

2
Secondary Prevention

- Testing

HIV testing locators

HIV self-testing

US FDA approved, July 2012

Vending Machines
Sex Clubs

- High-risk population that ‘cruise’ for anonymous sex
- LA County requires sex clubs to provide HIV testing and education

Table 1: Vending Machine and HIV Test Kit Usage Behavior

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you tested for HIV before?</td>
<td>Yes: 8</td>
</tr>
<tr>
<td>How far do you live from the vending machine site?</td>
<td>Range: 5-15 miles Mode: 5 miles</td>
</tr>
<tr>
<td>What time of day did you use the vending machine?</td>
<td>Morning = 4 Afternoon = 3</td>
</tr>
<tr>
<td>Was using the vending machine a private experience?</td>
<td>Yes = 5 No = 3</td>
</tr>
<tr>
<td>When did you use the test kit after receiving it?</td>
<td>Day = 6 Within a week = 2</td>
</tr>
<tr>
<td>Do you feel you need to test again after using the kit?</td>
<td>Yes = 0 Na = 8</td>
</tr>
<tr>
<td>How much should someone pay for the test kit when buying it from a vending machine?</td>
<td>Range: $5-$25 Mode: $5</td>
</tr>
</tbody>
</table>

Barriers to Sex Club Testing

- Sex club culture
- Client risk and demographics vary
- Busy hours at night versus tester availability during the day
Vended HIV Home Test Kit

McGrath M et al, CROI pre-meeting, 2015

Vending Machines

- Self-contained unit
- Remote monitoring
- Instructions posted
- Private area

McGrath M et al, CROI pre-meeting, 2015

Initial Concerns

- Cost of HIV home test kits
- Emptying the vending machine
- Conflict with existing testing programs
- Home test kit window period
- Result anxiety
- Gateway to more comprehensive testing

McGrath M et al, CROI pre-meeting, 2015

Results

- Scatterplots by week
- Tester schedule (orange blocks):
  - Tuesday 9am-5pm
  - Thursday 9am-5pm
  - Sunday 12pm-4pm

McGrath M et al, CROI pre-meeting, 2015

Plot of vended tests vs. staff tests by time and date

McGrath M et al, CROI pre-meeting, 2015

Results summary over 7 weeks

- Vending machine
  - 1,176 hours
  - 312 tests
- Traditional testers
  - 64 hours
  - 58 tests

McGrath M et al, CROI pre-meeting, 2015
Vouchers

Survey of voucher redeems, n = 49

<table>
<thead>
<tr>
<th>Survey Response</th>
<th>Total (n=49)</th>
</tr>
</thead>
<tbody>
<tr>
<td>For those that redeemed the voucher</td>
<td></td>
</tr>
<tr>
<td>Reported Test Result</td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>3* (6.1%)</td>
</tr>
<tr>
<td>Negative</td>
<td>44 (89.8%)</td>
</tr>
<tr>
<td>Not disclosed</td>
<td>2** (4.1%)</td>
</tr>
<tr>
<td>Activities Before taking the test:</td>
<td></td>
</tr>
<tr>
<td>Engaged in Pre-Test Activity:</td>
<td>44 (89.9%)</td>
</tr>
<tr>
<td>Activities After Taking the Test:</td>
<td>37 (75.5%)</td>
</tr>
</tbody>
</table>

* All 3 reported linkage to care  ** Both reported linkage to care

July – November 2013

RESEARCH ARTICLE

Piloting an HIV self-test kit voucher program to raise serostatus awareness of high-risk African Americans, Los Angeles

Marian M. Madala1, Arlene Young2, Christel Walter, Greg Byers3, Jeffrey Rodgers4, Joe Ortlieb5, Raul Martinez6 and Jeffrey D’Lessio7

Abstract

Background: Up to half of all new HIV cases in Los Angeles may be caused by the 30-40% of men who have sex with men (MSM) with unrecognized infection. African American men are particularly at high risk for being unaware of their HIV status. This study aimed to evaluate a voucher program benefitting from novel testing methods, such as the recently FDA-approved OraQuick® at-home test.

Methods: From July-November 2013, we undertook a pilot study to examine the feasibility of a voucher program for the OraQuick® test among African American MSM in Los Angeles. We determined eligibility based on 1) the establishment of a voucher endorsement and third-party payment system, 2) the willingness of clinic-endorsed organizations (CHO) to disseminate vouchers, and 3) the collection of 25 demographically test and linkages-case results with an anonymous feedback survey.

Results: We partnered with WellGoWell2 to create a voucher and third-party payment system for the OraQuick® test. Voucher distribution was divided into two periods: 2013, with vouchers supplied to OraQuick’s HIV test; and 2014, with vouchers provided to Vironis. The HIV test was provided as a federated pre-test test. The proportion of testees opting to continue the recommendation of patients of physicians who required medical care was two percent. Test results indicated both of whom received medical care.

Figure 1: Opinions in HIV In-Home Self-Test Voucher Use Survey Attitudes (N=50), Los Angeles, 2013
**Geosocial Networking Apps**

Source: Transcom

---

**Social media promotion 1**

**April-May 2014**

---

**11,939 website visits in 6 weeks**

- **app opening blast**
- **334 self-test requests**

---

**Figure 1:** Daily number of unique visits to the HIV self-test program website (17 Apr – 29 May)

---

**Slide courtesy of Dr. Ian Holloway, UCLA**
Social media promotion-2
October-November 2014

HIV self-testing summary

- Pilot projects using vending machines, vouchers and US mail delivery
  - 732 HIV self-tests delivered
    - 51 vending, 210 vouchers, 471 mail
  - Of 159 surveyed, 6 (3.8%) newly HIV+
  - 100% linked to care

Adherence and Retention
mHealth to improve health: effectiveness of a weekly text messaging intervention to improve ART adherence and HIV viral load in a Canadian context, Vancouver

N = 85 high-risk patients, VL > 200 copies
• Weekly interactive SMS x 1 year
• ART adherence increased: 62% → 68%
• Population VL declined 0.36 log
• 45% became undetectable
Future

- "Digital Big Brother" - the pill bottle will communicate with your phone and if you leave home without it, you will be reminded to go back
- Geo-mapping of STI test results to track where new infections occur
- Home PCR testing for STIs/HIV
- Tele-health for PrEP

Thank you