

Evaluation of Free Rapid HIV Home-Testing among MSM Trial

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SUPPORTING STATEMENT B

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Contact information

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B. COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

This information collection request does employ statistical methods. The following is a description of data collection procedures.

B.1. Respondent Universe and Sampling Methods

Randomized-controlled trial

Participants will be recruited through online banner advertisements displayed on social networking sites such as Facebook and sex-seeking/dating sites such as Manhunt and Adam4Adam.

The population for the study will be men over the age of 18 years who home-report that they have had anal sex with at least one man in the past year. Men will be recruited from the 12 cities with the highest HIV prevalence: Atlanta, Baltimore, Chicago, Dallas, the District of Columbia, Houston, Los Angeles, Miami, New York City, Philadelphia, San Francisco, and San Juan. Participants do not have to self-identify as gay, bisexual or transgender, although such terms will be used in recruitment scripts to attempt to recruit eligible men. Project staff have enhanced capability to link participants, and particularly newly identified HIV-positives, to services and resources in Atlanta, Chicago and New York City due to the researchers' established networks in these cities. We plan to recruit at least 50% of study participants from these 3 cities. A database of linkage resources is available for the remaining participants recruited from Baltimore, Dallas, the District of Columbia, Houston, Los Angeles, Miami, Philadelphia, San Francisco, and San Juan.. We will recruit approximately 3,200 men who report their HIV status to be negative or who are unaware of their HIV status, and 300 men who self-report that they are HIV-positive. We will ensure that at least 20% of participants are black and at least 15% are Hispanic.

The inclusion criteria for the randomized trial are: (1) male sex at birth; (2) currently identify their sex as male; (3) able to provide informed consent; (4) at least 18 years of age; (5) self-report being HIV-negative or unaware of their HIV status; (6) resident of Atlanta, Baltimore, Chicago, Dallas, the District of Columbia, Houston, Los Angeles, Miami, New York City, Philadelphia, San Francisco, or San Juan; (7) able to read instructions and complete study survey instruments in English; (8) self-reported anal sex with at least one man in the past 12

months; (9) have a valid email address, a cell phone capable of sending and receiving text messages, and a physical shipping address to receive kits; (10) never diagnosed with a bleeding disorder; (11) not part of an HIV vaccine trial; (12) not taking antiretroviral medication for HIV; and (13) not a participant in Parts 2 or 3.

The inclusion criteria for the Part 4 kit distribution by HIV-positive MSM are: (1) male sex at birth; (2) currently identify their sex as male; (3) able to provide informed consent; (4) at least 18 years of age; (5) self-report being HIV-positive; (6) resident of Atlanta, Baltimore, Chicago, Dallas, the District of Columbia, Houston, Los Angeles, Miami, New York City, Philadelphia, San Francisco, or San Juan; (7) able to read instructions and complete study survey instruments in English; (8) self-reported anal sex with at least one man in the past 12 months; (9) have a valid email address, a cell phone capable of sending and receiving text messages, and a physical shipping address to receive kits; and (10) not a participant in Parts 2 or 3.

We will take steps to avoid attrition, have planned conservatively for attrition in our sample size calculation, and have analytical plans to handle attrition in the analysis phase. To avoid attrition, we will collect multiple means of contact and will maintain frequent contact with participants. Using similar approaches, we have previously achieved 77% retention in an online cohort of MSM in a prospective at-home HIV testing study.

Also, we have planned conservatively statistically for attrition: To compare the annual HIV testing behaviors of men in the intervention arm and men in the control arm, a total sample size of 3200 men will be required. This sample size calculation is based on the following assumptions. For the main binary outcome, a success is defined as having ≥ 3 HIV tests per year. The proportion of successes in the control and the intervention arms will be compared using a chi-squared test with a two-sided significance level of 5%. Assuming a testing rate of 5% in the control arm and 10% in the intervention arm, a total sample size of 1164 (or 582 per arm) will be required to have 90% power to reject the null hypothesis of equal success rates in both arms. Allowing for a 40% annual attrition rate, the sample size needs to be inflated by $1/(1 - 0.40)^2 = 2.78$ (following Lachin's rule of thumb), giving a total sample size of 3234 (or 1617 per arm) will be required to have 90% power to reject this null hypothesis. Note that this is nearly double the attrition rate

we have observed in our previous similar study. Finally, we will account for attrition in analyses. Primary analyses will be intent to treat analyses, in which losses to follow-up will be treated as failures. This is a conservative approach to handling attrition.

The primary outcome in this randomized trial will be the proportion of HIV-negative and unaware MSM having ≥ 3 HIV tests per year. Simple and multiple logistic regression will be used to examine the relationships between the outcome of testing frequency (e.g., ≥ 3 tests per year, any tests per year) and various predictor variables, including treatment assignment (control or intervention arms), key demographic variables (e.g., age, race, education), and behavioral variables (e.g., patterns of sex partnering and sexual risk behaviors). Multiple imputation methods will be used to adjust for missing data (due to attrition or otherwise); this adjustment is especially important in light of the expected 40% annual attrition rate. Understanding the reasons for and predictors of attrition will be an important part of this analysis. Secondary outcomes will include kit preference, satisfaction with at-home testing, and yield from the distribution to social and sexual network affiliates stratified by HIV status of the participant. For men diagnosed with HIV during this trial, patterns of linkage to care will be examined.

Focus Groups and In-Depth Interviews

The population for the focus group discussions (FGDs) and in-depth interviews (IDIs) will be men who participated in the randomized trial and test kit distribution evaluation and are residents of Atlanta, Chicago or New York City. Approximately 216 participants will take part in the FGDs and 30 participants in the IDIs, for a total of 246 participants for the qualitative data collection. The FGDs will be limited to men who are HIV-negative at the end of the study. Three sets of FGDs will be conducted with men randomized to the intervention arm: a) men who never ordered additional tests; b) men tested themselves and ordered additional kits but did not distribute test kits to others; and c) men who tested themselves and ordered additional test kits and distributed test kits to others. In each set of FGDs, approximately 2 FGDs in each of the 3 cities will be conducted, producing 6 FGDs per city, and 18 FGDs in total. Focus groups will have between 6-12 participants.

The FGDs will include only HIV negative individuals who were recruited and enrolled in the intervention arm of the randomized

trial. Inclusion criteria for the FGDs are: (1) male sex at birth; (2) currently identify their sex as male; (3) able to provide informed consent; (4) at least 18 years of age; (5) resident of Atlanta, Chicago, or New York City; (6) able to read instructions and participate in the FGD in English; (7) was a participant in Part 4; (8) was randomized to the intervention arm; and (9) HIV-negative at the end of the randomized trial. IDIs will be conducted with HIV-positive men. Two groups of HIV positive men will be interviewed: a) prevalent positives - men who were positive at the time of enrollment into the test kit distribution activity, and b) incident positives - men who were HIV-negative or unaware at the time of enrollment into the randomized control trial intervention arm and who found out their HIV positive status during the study. For each of the data collection methods, we will ensure that at least 20% of participants are black and at least 15% are Hispanic.

For the IDIs, we will include only HIV positive individuals who were recruited and enrolled in the intervention arm of the randomized trial or the test kit distribution evaluation. Inclusion criteria for the IDIs are: (1) male sex at birth; (2) currently identify their sex as male; (3) able to provide informed consent; (4) at least 18 years of age; (5) resident of Atlanta, Chicago, or New York City; (6) able to read instructions and participate in the IDI in English; (7) was a participant in Part 4; and (8) was assigned to the HIV-positive group or was assigned to the intervention arm and identified as HIV positive during the study.

B.2. Procedures for the Collection of Information

B.2.1. Recruitment

Our goal is to recruit participants online who would be willing to participate in a web-based study of free HIV home-testing. Recruitment will be conducted through banner advertisements displayed on social networking sites such as Facebook and sex-seeking sites such as Manhunt and Adam4Adam. Banner advertisements will be displayed in English. Recruitment will be targeted only towards those men who indicate in their Facebook profile that they are interested in men and towards all men on approved sex-seeking sites, e.g., Manhunt and Adam4Adam, whose profile age is at least 18 years and who report their residence as Atlanta, Baltimore, Chicago, Dallas, the District of Columbia, Houston, Los Angeles, Miami, New York City, Philadelphia, San Francisco, or San Juan.

B.2.2. Screening and Scheduling Procedures

Men who click on the banner advertisements, will be taken to a page containing basic study information including a short description of study activities. If they express an interest in participation they will be taken to the study consent form, and if they consent they will be directed to a short eligibility screener (**Attachment 3a**), which will confirm that they meet the eligibility criteria for Part 4. Men who are eligible to participate will be prompted to complete the registration process (**Attachment 3b**). Men who successfully register will be provided with a link to the study web site where they will set up an account by selecting a user name, password and security questions. This study website will be used by participants to complete the baseline surveys (**Attachments 3c & 3d**), follow-up surveys (**Attachments 3f & 3g**) and to report their test results (**Attachments 3e & 3h**).

To randomize men to the intervention and comparison arms, we will use a pseudorandom number generator (PRNG) (also known as a deterministic random bit generator), which uses computations or pre-calculated numbers tables to yield numbers that will be used to stochastically determine group allocation. The commonly-used Mersenne Twister algorithm will be used to generate these numbers.

Intervention arm: After completing the baseline survey online or using a secure study smart phone application, a welcome kit with 4 rapid tests (i.e., 2 oral fluid test kits [OraQuick] and 2 finger-stick blood test kits [Sure Check]) will be sent to participants in the intervention arm to use and/or give away. Intervention arm participants will receive a web link to complete follow-up surveys at 3, 6, 9 and 12 months and have the option to order additional test kits at 3, 6 and 9 months.

Comparison arm: After completing the baseline survey online or using a secure study smart phone application, comparison arm participants will receive a welcome greeting and HIV prevention information. The online information will cover the importance of testing, links to AIDSVu and resources to locate HIV testing services and prevention information in their area. The Emory University IRB has supported the study design as ethically appropriate. Our control condition involves providing educational materials about how to access HIV testing that are already available to people, so it is as close to a "no-intervention" control as ethically possible. Comparison arm

participants will receive a web link to complete follow-up surveys at 3, 6, 9 and 12 months.

HIV-positive group: Upon completion of the baseline survey they will be informed that a package containing a welcome kit including 4 rapid HIV home-tests: 2 oral fluid tests (OraQuick) and 2 finger-stick blood tests (Sure Check) is being sent to the shipping address they provided. They will be informed that these tests are to give to sexual partners or friends. HIV-positive group men will receive follow-up surveys at 3 and 6 months and will have the option to order additional test kits at 3 months.

All study test kits will be affixed with a barcoded sticker to enable the kit to be tracked. Kits will be scanned prior to distribution to study participants, which will link the test kit information (the type of test) with the ID number of the participant it was sent to. Participants will be required to scan or enter a test kit barcode number into the study website to verify the test kit is part of the eSTAMP Part 4 study; recognition of the test kit will then allow the user to report their test results. Study staff will keep a log of the test kit lot numbers, the barcode number and participant ID the test kit was sent to for each test kit. Study staff will monitor the progress of the delivery and tracking system.

B.2.3. Data Collection Methods

After consenting, all eligible men who have completed the registration process will take a baseline survey. They will have the option of accessing the survey online or downloading a secure smart phone application. Men who take the baseline survey online will enter responses to survey questions directly into their computer via a web interface. Men who use the smart phone application will interact with and enter responses to survey questions directly into the application. The baseline survey will collect information on demographic characteristics, HIV testing history, and sexual risk behavior. Men will be asked to use the study website or smart phone application to enter results of their rapid HIV home-tests that they receive and conduct at home. All participants will be able to take the follow-up surveys online or through a secure smart phone application. The follow-up surveys will collect information on HIV testing results and behaviors and sexual activities.

Intervention arm: After registration, men in the intervention arm will complete the baseline survey. Upon completion of the baseline survey they will be informed that a package containing

a welcome kit including 4 HIV rapid home-tests: 2 oral fluid tests (OraQuick), 2 finger-stick blood tests (Sure Check) is being sent to the shipping address they provided. They will be asked that if they use any of the test kits to test themselves that they use the study website or smart phone application to enter their results. At 3, 6, 9 and 12 months men will receive a follow-up survey and report on HIV testing activities and results (either home-testing or testing in other settings), kit distribution to members of their social or sexual networks, and details of the relationship (i.e., sex partner, friend) with the people they gave kits to. Following the completion of the follow-up survey at 3, 6 or 9 months, men in the intervention arm will have an opportunity to order up to 4 kits (depending on the number used or distributed). At month 12, participants in the intervention arm will take a final follow-up survey and be sent a package containing 1 oral fluid HIV test kit (OraQuick) and 1 finger-stick blood HIV test kit (Sure Check) and a DBS specimen collection kit.

Intervention arm participants that report a positive HIV test result before the 12 month assessment by reporting home-test results or through follow-up surveys will be sent the performance assessment package containing 1 oral fluid HIV test kit (OraQuick) and 1 finger-stick blood HIV test kit (Sure Check) and a DBS specimen collection kit. Participants will report the results of the at-home rapid HIV test and mail the DBS card to Emory University for laboratory testing at the CDC lab. If they decline the performance assessment at this point, they will be offered the performance package after completing the 12 month assessment. Intervention arm participants that report a positive HIV test result will no longer be eligible to receive additional test kits and will be considered "censored" for the purposes of assessing HIV testing frequency and kit distribution. They will continue to receive follow-up surveys that will include questions about access to and retention in HIV care.

Comparison arm: After completing the baseline survey, comparison arm participants will be linked to a welcome greeting and HIV prevention information. The online information will cover the importance of testing, links to AIDSVu and resources to locate HIV testing services and prevention information in their area. At 3, 6, 9 and 12 months men will receive a follow-up survey and report on HIV testing activities and results.

Comparison arm participants that report a positive HIV test result before the 12 month assessment through follow-up surveys

will be offered the performance assessment package containing 1 oral fluid HIV test kit (OraQuick) and 1 finger-stick blood HIV test kit (Sure Check) and a DBS specimen collection kit. If they decline the performance assessment at this point, they will be offered the performance package after completing the 12 month assessment. Comparison arm participants that report a positive HIV test result will be considered "censored" for the purposes of assessing HIV testing frequency. They will continue to receive follow-up surveys that will include questions about access to and retention in HIV care.

HIV-positive group: After registration, men in the HIV-positive group will complete the baseline survey. Upon completion of the baseline survey they will be informed that a package containing a welcome kit including 4 HIV rapid home-tests: 2 oral fluid tests (OraQuick), 2 finger-stick blood tests (Sure Check) is being sent to the shipping address they provided. They will be informed that these tests are to give to sexual partners or friends. They will be asked that if they use any of the test kits to test themselves that they use the study website or smart phone application to enter results. At 3 and 6 months men will receive a follow-up survey and report on kit distribution to members of their social or sexual networks, and details of the relationship (i.e., sex partner, friend) with the people they gave kits to. Following the completion of the follow-up survey at month 3, men in the HIV-positive group will have an opportunity to order up to 4 kits to replace kits that were used or distributed.

B.3. Methods to Maximize Response Rates and Deal with Nonresponse

Researchers involved in this study have extensive research experience in recruiting and retaining the population of interest in this study: men who have sex with men (MSM). We plan to obtain maximum response rates by collecting and validating contact information and by providing tokens of appreciation. During the registration process they will provide their contact information including an email address, a cell phone number and a mailing address and will also be asked to provide a nickname or name of choice. Once a participant submits an email address as part of the registration process, an email containing a code will be immediately sent to that address. The purpose of this email is to ensure that participants provide a valid email address. Also, a text message containing a code will be immediately sent to the cell phone number provided by the participant. The participant must then enter this code as part

of the registration process in order to continue. The purpose of sending this code is to verify that the participant has provided a valid cell phone number.

Email or text message reminders, depending on the participant's preference, will be sent prior to each follow-up survey. Also, participants who have not sent their DBS specimen to Emory for laboratory testing within three weeks after the DBS specimen collection kit was mailed will be sent an email or text reminder, depending on the participant's preference, by Emory study staff. Emory study staff will send up to 3 reminders to participants who have not sent their DBS specimen, and then will contact the participant by phone to request that the DBS specimen be sent.

Men will receive tokens of appreciation for completing specific tasks during Part 4. Upon completion of the baseline survey, men will be given \$20 as a token of appreciation. All men will receive \$10 for completing each follow-up survey (men in the intervention and comparison arms at months 3, 6, 9 and 12, and men in the HIV-positive group at months 3 and 6), and men in the intervention and comparison arms will be given \$20 as a token of appreciation for returning the DBS specimen. The tokens of appreciation will be paid by PayPal or by Amazon.com gift card, depending on participant preference. A token of appreciation is necessary to ensure recruitment and retention of a stigmatized population who are at greatest risk of becoming infected with HIV. Without providing the tokens of appreciation, the contractor will not be able to recruit and retain the required number of individuals necessary to meet the goals of the study in the required timeframe. This will jeopardize the success of the government's contract.

B.4. Tests of Procedures or Methods to be Undertaken

This submission is a request for authorization to conduct tests of procedures and methodologies typical in randomized controlled trials.

B.5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

The contractor and subcontractors were involved in designing the study and will implement study procedures. The persons involved are:

Principal Investigator
Patrick Sullivan

Co-Investigators

A.D. McNaghten
Laura Gravens
Akshay Sharma
Craig Sineath
Rob Stephenson
Kate Winskell
Brian Mustanski
Michael Newcomb
Mary Ann Chiasson
Sabina Hirschfield

The federal staff members who are involved with the various aspects of designing and implementing the study are listed below.

Lisa Belcher
Arin Freeman
Darrel Higa
Wayne Johnson
Heather Joseph
Robin MacGowan
Andrew Margolis
David Purcell
Jerris Raiford
Kristina Bowles
Pollyanna Chavez
Liz DiNenno
Steven Ethridge
Laura Wesolowski
Bernard Branson
Jonathan Mermin
Richard Wolitski
Michele Owen
Craig Borkowf