E-PrEP Cluster-RCT Study Protocol

Background

Of the estimated 50,000 new HIV infections occurring annually in the U.S., Man who have Sex with Men (MSM), who make up 2-3% of the population, account for 61% of cases. Disparities affecting Yong Men who have Sex with Men (YMSM), and particularly Young Men of Color who have Sex with Men (YMCSM), are even more pronounced. In 2009, YMSM accounted for 69% of all new HIV cases in young people, and 27% of overall new HIV infections.[52]While HIV rates have stabilized or decreased for most demographic groups in the U.S., they continue to rise among YMCSM.[52,54,55] Between 2006-2009, there was a 34% increase in new HIV infections in YMSM, with Black MSM experiencing a 48% increase.[52] Other studies have found very high incidence rates in YMCSM, ranging up to 5.8% annually.[71,72] In the Bronx, the epidemic parallels national trends, with YMCSM accounting for 65% of all new HIV cases in young people.[54,55]

Reasons for increasing rates of HIV in YMCSM are multiple and complex. Lack of access to regular medical care or to antiretroviral therapy, higher community viral loads, lack of knowledge of HIV status, stigma and discrimination surrounding both same sex behaviors and HIV, complacency about HIV risk, and failure of effective prevention tools to reach YMCSM all contribute to the growing epidemic[71,73,74]. While PrEP does not address all of these factors directly, it may mitigate the immediate risk of HIV acquisition in YMCSM.[61]

While many effective behavioral HIV prevention interventions have been developed, these programs do not reach nearly 75% of YMSM.[59] This lack of reach may partly be explained by inability to reach those YMCSM who do not identify as gay or bisexual and/or who are unlikely to present in-person to LBGT- or HIV-affiliated settings, where most interventions take place.[56,57] Bio-behavioral interventions, including PrEP, that can be publicized in widely accessible venues (e.g. social media) and delivered in general medical (e.g. primary care) settings are urgently needed to help reduce the HIV burden in YMCSM.[75-78]

Numerous, Clinical trials have shown daily PrEP to be efficacious in MSM,[61] heterosexuals,[62,64] and injection drug users,[63] but the real world effectiveness of PrEP will depend on uptake. The iPrEx trial[61] (which included YMSM) and Project PrEP[79] (the only trial specifically focusing on YMSM in the U.S.) both found PrEP to be feasible and highly acceptable, but whether and how YMSM will use PrEP remains unknown, as these trials were not designed to understand determinants of PrEP adoption. Other studies of YMCSM's *perceived interest* in using PrEP[80,81] also indicate *potential* high acceptability, but none of these studies were conducted with *actual PrEP users*, and they did not take into account the most recent efficacy data, FDA approval of PrEP, or current CDC guidelines for PrEP.[82,83] Therefore, though effectiveness and acceptability of PrEP have been shown to high among YMCSM study participants, more data are needed from a broader population to ensure translation and scalability.

Ensuring access to PrEP by YMCSM remains paramount, [84, 85] including facilitating access to information and resources for decision making about PrEP.[85-88] Regarding cost, Medicaid and other insurers in New York State cover PrEP, and patient assistance programs exist to help the uninsured and/or those who cannot afford PrEP. Additionally, several other states' Medicaid and HIV programs also cover PrEP or are deliberating about how to cover PrEP, which is likely to spur additional insurers to cover PrEP.[83,89] The likelihood that PrEP will be widely covered in the near future enhances the importance of the proposed study.

As a tool for behavioral interventions, Social media employs Internet based technologies (e.g. Facebook, Twitter) to support interactive dialogue by facilitating exchange of user-generated content in online networks.[90] Social media access and use by young people is ubiquitous, and disparities in use by racial/ethnic minority status or income are minimal among youth.[91-94] Our prior study in low-income YMCSM in New York City showed universal access to and daily use of multiple social media sites, even by homeless YMCSM (see H.1.1).[6] Given the challenge faced by current HIV interventions in reaching YMCSM, social media may be particularly efficient for engaging this population.[95] Other studies (including our own preliminary work) show that YMCSM are readily identifiable and accessible through social media, and that many use these sites to seek sex partners. Because of their high risk of acquiring HIV,[96-101] online YMCSM are especially important targets for PrEP.

Although previously utilized, Internet-based interventions have not reached their full potential because they generally rely on 'Web 1.0' formats with one-way communication, and users are usually passive recipients of information from static sources.[102-104] In addition, prior Internet-based interventions have not been integrated

into participants' natural usage patterns, requiring instead that participants visit study-specific sites and then devote substantial time to receive an adequate 'dose,' thus reducing the intervention's potential impact. Social media may overcome these limitations because participants are not required to visit a special site and contents can be incorporated into typical use patterns and 'pushed' to users' homepages while users' privacy is still maintained.[77,78,105,106] Additionally, if online interventions are developed using participatory methods, their relevancy to the target group will be increased.[107-111]

Though a number of studies of social media-based health interventions have been published,[76,97,98,106,112-114,169,177-8] best practices in this field are unknown and still evolving. Behavioral interventions leveraging online networks have the potential to affect population health dramatically, given their capacity to disseminate information virally, facilitate social support, and modify norms.[78,105,115] While there is a growing body of formative data,[116-118] the application of this information has been limited, partly due to rapid evolution of technology.[119] The design flexibility of our project will enable us to incorporate new 'evidence' and adapt to the changing technological landscape.

Existing behavioral interventions have had limited success in reducing HIV infections in YMCSM. The promise of PrEP to reduce HIV transmission will be realized in YMCSM only if uptake is achieved. A social media-based approach to facilitate PrEP uptake may efficiently identify and reach high risk YMCSM, and may therefore enhance PrEP adoption by linking individuals to sites where they can receive PrEP.

Objective and Rationale

This will be the first study (to our knowledge) to examine PrEP adoption in Young Men of Color who have Sex with Men (YMCSM) since FDA approval of PrEP. While prior efficacy trials have included YMCSM 18-29,[60,78] we will focus on PrEP in YMCSM outside clinical trial settings. New York City is an ideal setting for this study because of the density of vulnerable YMCSM, the accessibility to PrEP through major health centers,[66-68] and local policies permitting Medicaid and other insurers to cover PrEP. Understanding PrEP adoption by YMCSM in New York City through qualitative interviews with both users and non-adopters will allow us to determine barriers to and facilitators of PrEP uptake, and to develop a tailored intervention (E-PrEP) for hard to reach YMCSM.

Rather than an alternative medium for implementation of existing interventions designed for in-person contact, social media may be a true 'game changer'[74,76,77,121,122] to engage hard to reach individuals. While many online behavioral interventions exist, including some that use social media,[169] ours will be the first to use social media to facilitate uptake of a biomedical intervention. E-PrEP will connect the target population (YMCSM) to a new prevention tool (PrEP) through rapid linkage to medical care, accelerating diffusion of PrEP. Given the paucity of data regarding social media-based interventions to change health-related behavior, E-PrEP may have a marked impact on future bio-behavioral interventions, especially those that include diffusion of innovation.

Social media offers the power of scale and efficiency for large potential impact, even with relatively low intensity interventions.[77,109,122] Similarly, PrEP, if widely adopted in high-risk populations and offered with behavioral interventions, could markedly decrease HIV infection rates. Social media-based, peer-led approaches like E-PrEP could be used to enhance efforts by community based and other organizations that employ internet-assisted or peer-outreach strategies to improve health.[76]

Aims: To test the feasibility and preliminary efficacy of E-PrEP for increasing PrEP adoption in a cluster-randomized controlled trial.

Methods

Participants: The 16-20 peers will be randomized 1:1 to either E-PrEP or BxNow (control condition). They will then recruit n=240 total participants (120 for E-PrEP and 120 to BxNow). Each Peer will recruit approximately n=15 participants.

Inclusion criteria: Male or trans individuals; Ages 18-29; Have had unprotected anal sex with a male partner in the prior 12 months; Fluent in English or Spanish; Are HIV negative or unknown status (self-report); Identify as Black and/or Latino

Exclusion criteria: YMCSM or trans individuals who do not consent/assent to study; Are currently taking PrEP for HIV prevention, not currently using at least one of 3 social media sites that will be used for the E-PrEP intervention (e.g. not using Facebook, Twitter, Tumblr).

Intervention Procedures: After target enrollment (n=240) is reached, YMCSM Peers will begin the intervention by posting materials according to the timeline developed in the ongoing E-PrEP content project. We will hold weekly project meetings (on different days) with Peers assigned to both E-PrEP and BxNow to ensure appropriate implementation, and to discuss logistical, ethical, or other issues that arise. For participants in the BxNow control arm, Peers will post about general health topics unrelated to HIV or sexual health (e.g. fitness, nutrition, smoking). If a control participant posts a question about PrEP, Peers will refer the individual to the CDC PrEP information site or answer the question privately. Content for both arms will be posted over a 6 week period, and outcome data will be collected via online surveys at baseline,6, ~~and~~ 12 weeks and after 36 weeks (Table 1~~3~~). Participants will be given $20, $30, ~~and~~ $40 and 20 online gift-cards or through a Clincard as incentives after completion of assessments at T1, T2, ~~and~~ T3, and T4 respectively.

Anticipated components of E-PrEP: Potential components are listed in Table 2. *However, the exact contents, formats, and mode and timing of delivery of E-PrEP will be informed by input from Peers.*[123] We have successfully used this approach in *theSEXword* pilot, with ongoing engagement by participants. We will develop all components for both E-PrEP and the control condition (BxNow), and will also create an intervention activity guide for all 6 weeks, but the exact timeline for intervention delivery will be determined based on findings from Aims 1 and 2. We will thus standardize E-PrEP in its mode of delivery, types of digital media and contents, message framing, and sequence of topics posted and discussed, but Peers will tailor the exact language of posts based on their communication style. Components will be interactive wherever possible; for example, to target a factor such as perceived low risk, participants might assess their risk in an interactive poll, see results in real-time, compare themselves to others, and be engaged by Peers in discussions about risk. To address barriers to access, we might develop a brief time-elapsed video showing where and how to register at a clinic to obtain PrEP. All materials, including assessments, will be smartphone friendly, as most participants use mobile devices.

Table 1. Intervention Timeline

Component / Week	-4	0	6	12	36+
Participant Recruitment	■				
Baseline Survey T1		■			
Exposure to Intervention		■	■		
Assessment T2 (intervention end)			■		
Assesment T3 (Post-intervention)				■	
Assesment T4 (Follow-Up)					■

Developing BxNow (control condition): BxNow will focus on general health topics unrelated to HIV or sexual health (i.e. fitness, nutrition, smoking), but will also include basic information on PrEP as well as referral resources. We will develop a 6-week timeline to match the E-PrEP timeline, and we will compile publicly available digital media addressing general health topics (e.g. from CDC LGBT website). As with E-PrEP, standardized BxNow content will be delivered by Peers, using their own language. Additionally, after trial end (12 weeks), BxNow participants will be exposed to all E-PrEP components.

Setup of intervention sites: We will provide customized training and setup to the project team (PI, RA, Peers), establish 'E-PrEP' and 'BxNow' (control) private virtual communities (e.g closed Facebook group, private Twitter feed, private Tumbler blog), and implement systems for recruitment, consent, and online data collection (e.g. # of sites joined by each participant, engagement indicators for each posted component and for each participant, and other process measures).

Risk: Possible risks faced by the participant include: confidentiality issues, inconvenience and discomfort associated with interviews, potential risk compensation if PrEP is adopted, and fear that refusal to participate will affect relationship with Peers. More detail information about the potential risk and precautions against those risks can be found in the attached Protection of Human Subjects document sections I.4 and I.5.

Benefits: Although there are no direct potential benefits to participants, possible benefits include increase access to healthcare education and new HIV prevention information. Additionally, E-PrEP has the potential to increase reach of HIV prevention programs and services, and reduce HIV risk behaviors in YMCSM, but will require pilot testing and refinement. If effective, E-PrEP could be broadly implemented by health centers and community-based organizations, and reduce HIV transmission and promote healthy behaviors. Given the steps that we will take to minimize the chances of breach of confidentiality, participating in this study presents low risk and the risk/benefit ratio is favorable. For more information about the risk and benefits please consult the Protection of Human Subjects document section I.6 attached below.

Procedures

PROCEDURES FOR PEER LEADER Participation:

Peer Leaders (Peers) Recruitment: In addition to the study participants, we will recruit 16-20 New York city based YMCSM Peer Leaders 18-29 to partner with us on this project. The initial pool of Peers will be from our recently completed *theSEXword* pilot and additional Peers as needed will be recruited through the Adolescent AIDS Program YMSM outreach program or Bronx based community organizations involved in my Bronx Pride Initiative partnership (see Facilities section) and on the Montefiore-Einstein Center for AIDS Research Community Advisory Board, which I help facilitate. Recruited Peers will have all completed participation in a face-to-face HIV prevention and leadership facilitation intervention (the 'Popular Opinion Leader' program[152]or a similar program offered at the Adolescent AIDS Program and at other community agencies), identified by agency staff as an individual who appears to be a "leader" in their specific YMCSM community, has large online social networks (i.e. >300 YMCSM 'friends'). Our current *theSEXword* YMCSM Peers were recruited within 1 week and we had to create a wait-list of individuals wanting to participate. On average, our current Peers have approximately 500 unique MSM of color "friends" on their social networks and it is not unusual for many of them to have >1,000 "friends" or "followers" on their social media profiles. Therefore we do not anticipate having any difficulty recruiting Peer Leaders that meet our criteria and are appropriate for this project.

Study Procedures for Peer Leaders (Peers)

We will use community based participatory research principles for implementing the study with Peers. Peer Leaders will meet up to 9 times during the course of the study (over a 7-10 week period) for ongoing trainings in online outreach, implementation of the online outreach, and providing ongoing feedback Meetings will take place in a private conference room at Montefiore Medical Center. Peers may additionally meet for two follow-up visits after completion of the study to provide additional feedback in focus group discussions. The 9 study visits/sessions will be spread out over a course of 7-10 weeks.

To evaluate the impact of our trainings and the effects of the study on the Peers, we will use a mixed methods evaluation design. First, all Peers will complete a written informed consent at the first session (Visit 1) before we collect any information, conducted by a study coordinator or the PI. Next, the Peers will complete a very brief survey on basic socio-demographics, experience with using social media, and general information about their existing online social networks (e.g. number of Facebook Friends or Instagram Followers). At each subsequent visit, we will collect process data on the online outreach intervention by asking the Peer Leader participants in a group setting to discuss 1) any challenges or issues that have come up over the past week(s), 2) suggestions for improvement of online outreach, 3) and to report on any technical or other issues that they may have encountered with conducting online outreach.

After completion of the study visits with the Peer Leaders, we will elicit feedback on their experiences participating in the study using an informal discussion guide in a focus group setting. The data/information will be captured by a study coordinator who will take written notes during all of the sessions. No names or identifying information will be collected or attached to the process data collected. We will conduct up to 2 such sessions, once relatively soon after completion of the initial phase of the study (After week 6 of the intervention as described in the 'General Participants' section below and then after week 12 of data collection) to fully inform and guide online outreach practices and to capture any potentially relevant issues that may have come up during the follow-up period for the general participants.

Compensation for Peer Leader participants. . Peers will be compensated for their time and travel and incentivized to actively participate in each visit by providing a ClinCard up to a total of $425 over the course of the study for 9 visits. Peer Leaders will receive the incentive by having it added to a debit card, after attending each visit. The payments will occur as follows: Visit 1: $30, Visit 2: $40, Visits 3-4: $45 each, Visits 5-7: $50 each, Visit 8: $55, Visit 9: $60. Peers will not receive any compensation for visits in which they do not attend. Additionally, Peer Leaders may be able to receive an additional $60 for each of two optional follow-up visits after the completion of intervention (up to two more visits).

Training in Ethical Conduct of Research for Peer Leaders: Although we will be collecting data from the Peers in order to evaluate the study and the Peers are also research subjects in this study, as part of the overall intervention, Peers will be conducting online recruitment and outreach and therefore we will make sure that Peers have a clear understanding of their roles in this capacity. We will initially conduct a two-session training with the Peers where they will go through our community research ethics training. I adapted this training from a World Health Organization training manual for lay community members, such as our Peers, participating as 'community researchers' to make accessible to them training in research ethics. It covers topics in history of research ethics, privacy and confidentiality, vulnerable subjects, ethical recruitment practices, protecting against risks, minimizing risks, and personal safety and conduct. This training has previously used with community partners for whom the CITI course is inaccessible due to literacy and/or language barriers. Additionally, we will have ongoing trainings throughout the project period in online privacy, security issues, and confidentiality with information. Peers in the study are not key personal, however we believe it is important that they do understand research ethics.

PROCEDURES FOR GENERAL PARTICIPANTS

Recruitment:

1. We will first randomize the 16 to 20 peers, 1:1 to either E-PrEP or BxNow (control condition).
2. Peers will then recruit n=240 participants total from their personal online social networks to their assigned condition (E-PrEP or BxNow). On average, each peer will recruit approximately 15 participants each.
3. **Peers will actively recruit online** within their pre-existing social networks using text messages, brief videos, and picture graphics, using whichever mode is deemed appropriate. These recruitment advertisements will be co-developed by the Peers and investigators. Peers will then post the designated messages to their online social networks.
4. **In addition to recruitment lead by peers,** the research team will use the a study Facebook profile to buy ads on Facebook to outreach to potential participants. The ads will be targeted to 18-29 year old men who live in New York City, who are interested in Men, Men and Women or Unspecified, and who identify as Latino, Hispanic, Black or African American. Examples of the Facebook Ads can be found in the Participant Recruitment File. We will assign participants randomly with equal number to the Facebook groups of Peers Leaders who are having trouble with recruitment.
5. All recruitment messages will have customized links (enabling tracking of recruitment method and online venue) that will then lead participants to a secure study information and screening page (which will be cross-compatible across devices, e.g. a computer, iPad, or other mobile device such as smart-phones). To prevent inappropriate participants from joining the study and not inadvertently discourage appropriate participants, we will not display specific eligibility requirement on the recruitment messages.
6. Due to technological advancements, the ads will be geographically limited to those potential participants accessing these sites from the New York or have indicated a New York address on their social media profile. We have used this approach in our recently completed *theSEXword* social media pilot. While we will not explicitly exclude individuals not living or working in the Bronx, the above methods will help limit issues with potential participants being accidentally excluded and inappropriately included. This will also help reduce the burden of questions participants need to answer in the screening page. This approach will enable us to obtain a diverse sample of YMCSM living or working in

the New York.

7. The screening page will be a very brief online questionnaire. Those meeting eligibility will be taken to an informed consent or assent (if <18 years of age) page, provided with contact information of the PI and research assistant to enable them to ask questions about the study prior to joining. Those not meeting eligibility will be taken to a separate page indicating that they were not eligible (but will not say why, to prevent fraudulent "gaming" of the study) and provided with links to local health resources.
8. To help facilitate understanding of the research study and consent procedures, we will record brief streaming videos of the consent in English and Spanish in addition to having the consent text on the informed consent page. We will provide potential participants with contact information (email, social media messaging link, and telephone) of the PI and research assistant to enable them to ask questions about the study prior to joining. Participants will indicate their consent by entering their social media ID and clicking a button to that effect. Participants will be able to print the consent document or have it emailed to them. After indicating consent, participants will be taken directly to an online baseline survey. Those indicating they do not agree will be taken to a separate page and provided links to local health resources.
9. We will obtain online informed consent prior to providing the self-administered online questionnaires and collection of any automated collection of process data. Online informed consents will be provided in two ways: (1) A recorded video of the informed consent text by a Peer will be displayed and (2) the same information will be provided in an easy to read text format. A link for emailing or direct messaging and contact information with the PI and Research Assistant's office phone numbers will be displayed for potential participants to ask any questions they may have. To indicate consent, an individual will then click a box attesting to their consent and then clicking a "submit" button. After consenting, participants will be taken directly to a baseline assessment survey and after completing the survey, participants will be asked to join the private social media E-PrEP (intervention) or BxNow (control condition) groups on one or more of three social media sites.

More detail information about recruitment practices and ethical research considerations can be found in the (I.4 and I.5)

Compensation: Participants will be given $20, $30, ~~and~~ $40 and $20 as incentives after completion of assessments at baseline (T1), 6 weeks (T2), ~~and~~ 12 weeks(T3), and post 36 weeks (T4) (respectively. The participants will be given the choice to receive their incentives either via e-codes, Amazon online-gift cards, or by receiving a Clincard.

Data Collection:

We will collect three general types of data: 1) online processes (e.g. referral source, # of platforms joined by each participant); 2) measures of engagement with intervention components (e.g. # of views, time spent online); and 3) measures of outcome and independent variables, collected through online surveys at the four~~three~~ time points (see Table 2). To help assess both degree of exposure to intervention components and possible contamination between the two conditions, the surveys at 6 weeks (T2), ~~and~~ 12 weeks (T3) will display random samples of study and non-study graphics and posts and ask participants if they recall seeing them, with E-PrEP materials embedded in the choices.[106,119,141]

Table 2. Data Collection

Measures / Week	0	6	12	36+
PrEP intention, use, knowledge, attitudes	x	x	x	x
Perceived PrEP attributes	x	x	x	
HIV testing, risk behaviors	x	x	x	
Peer affinity and network data	x	x	x	
Sociodemographic Factors	x			
Sexual Orientation	x			
Healthcare access	x	x	x	
Substance use	x	x	x	
Perceived risk, stigma	x	x	x	
Social media engagement	x	x		
Intervention exposure		x	x	

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Peer affinity and network data	x	x	x	
Sociodemographic Factors	x			
Sexual Orientation	x			
Healthcare access	x	x	x	
Substance use	x	x	x	
Perceived risk, stigma	x	x	x	
Social media engagement	x	x		
Intervention exposure		x	x	

Data Security:

In order to securing information over the Internet and social media, and protecting participant data, an electronic, password protected and encrypted system will be developed to store analyses, and social media activity will remain private to study participants.[164] Research participants will be informed of how communications are recorded and stored during the online informed consent process. Due to the ever-changing and evolving nature of privacy issues on social media sites, we will review privacy settings for all social media study sites at least every four weeks and adjustments will be made to the study sites as necessary.

Data analyses and reporting will be conducted using de-identified data in so that no participants will be identifiable. When reporting data, survey results will summarize demographic information, including age group, gender and race/ethnicity for no fewer than 10 participants. All participant responses will be kept confidential. Only research staff, and *NOT* the Peers will be able to review raw survey responses and un-summarized web activity. At all times, data collected for the project will downloaded onto secure servers and stored in password protected encrypted files. Peers will not have access to this data to help maintain confidentiality of participant's data.

In order to deliver electronic gift card incentives, participants will be asked to provide their profile name and an e-mail address where we can send incentives, after completion of the survey – and this information will not be linked to a their recently completed or incomplete survey/online assessment. In the rare cases where a Clincard is chosen, participants will be asked to identify using their profile name or email address when they pick up their card. For those participants, we will create a separate Clincard Study ID. When they come in, we will enter the necessary information to set up the card immediately onto the Clincard website, we will not keep any of this information on any records outside the Clincard website. As a way to facilitate the delivery of future incentives, an excel document containing the Clincard Study ID, profile name or email, and Clincard number will be created. The document will be password protected and only the research team will have access to it.This document will be deleted once the final surveys have been completed and all incentives have been delivered and verified.

In addition, Qualtrics utilizes some of the most advanced technology for Internet security commercially available today. Survey data will be stored on encrypted secure servers maintained by Qualtrics and only accessible to the research team via a secure Internet connection. To prevent duplicate responses, i.e. "ballot stuffing," we will restrict responses to one IP address, but will not collect or save IP addresses. Qualtrics has options built in already that allow for anonymizing responses which we will be using. See the following links for more details:

1. https://www.qualtrics.com/support/survey-platform/survey-module/survey-options/survey-protection/#PreventingRespondentsFromTakingYourSurveyMoreThanOnce

Furthermore, we will download the raw data and store it in a password protected ***and*** encrypted file on the office computer of Dr. Viraj Patel. Only the PIs and research study staff will have access to the full data-set.

Analytic Plan: Our *primary outcome* will be intention to use PrEP,[83] which we consider a predictor of subsequent use,[142] and will be measured using a Likert scale. We will use 'intention' as a proxy given the low likelihood of actual PrEP use.[83,132,143] *Secondary outcomes* will be PrEP use, knowledge,[143] perceptions about PrEP[134] and HIV testing- and risk-behaviors.[144] *Covariates*[80,81,143,145-148] will include access to medical care (including HIV/STI testing), sexual orientation, HIV and PrEP related stigma, substance use, sociodemographic factors,[144] social media engagement and network data,[149,169] and perceived affinity to the referring Peer.[150] First, we will compare groups for equivalence at baseline, using chi-square or t-tests as appropriate. In addition, we will determine whether subgroups (e.g., grouped by number of social media sites joined, social media platform(s) used, peer referent, race/ethnicity, and sexual orientation) differ with respect to the primary and secondary outcomes. Relevant differences will be used as covariates in subsequent models. At each time point, we will examine change in our primary outcome variable (*intention to use PrEP*) by using a traditional two-sample test of proportions. To compare differences in outcomes between arms over time, we will use

repeated measures mixed-effects logistic and linear models, with the treatment arm as a fixed-effect, Peers as a random-effect, and time (as a linear term) as an independent variable. We will also look at residual plots to determine if we need to include non-linear terms for time. Next, we will use hierarchical models to examine the role of secondary outcomes as potential mediators of change over time, e.g. are there differences by condition in PrEP knowledge or perceptions that account for differences in intentions. Finally, we will assess the impact of the exposure arm (E-PrEP or BxNow) and selected covariates (significant in the bivariate analysis at $p<0.1$) on the primary and secondary outcomes using mixed-effects models. We will also assess the impact of online process and engagement variables on outcomes. To overcome possible limitations due to intra-cluster correlations, we will include a modified sensitivity analysis that examines outcomes in relation to participants' network size and perceived affinity to the Peers.To test ***feasibility***, we will assess online process measures, including participation rate (# of individuals screening eligible and then ultimately joining the study), engagement activity (e.g. time spent viewing posted videos, # of responses posted to questions, participation in polls, etc.), and retention (# of participants actively 'leaving' or 'un-joining' a social media study site and # of respondents to follow-up assessments).

Power Analysis: The primary purpose of this study is to test feasibility and to obtain an effect size estimate for a future R01 application. We estimate that a sample size of 220, accounting for up to 20% attrition[106] will provide 80% power to detect an effect size of 20% in E-PrEP vs. 5% in BxNow in the proportion of participants indicating *'intention to use PrEP'* at 6 weeks, with a two-sided alpha <.05. We will also have adequate power to detect a smaller effect size at 12 weeks because of our repeated measures design. This conservative effect size estimate is reasonable, given the novelty of the proposed intervention, the absence of other studies assessing uptake of a biomedical tool in YMSM, and the results of other studies assessing potential interest in PrEP.[83]

[redacted]

Procedures outlined below have been guided by Dr. Ruth Macklin (Consultant), and by Dr. Keith Horvath (Consultant), who has extensive experience in conducting online survey and intervention studies with vulnerable populations including MSM.

I.1 HUMAN SUBJECTS INVOLVEMENT AND CHARACTERISTICS: In table 1 below, we summarize the project's activities, the number of participants who we project will participate in each activity, and the amount of reimbursement each participant will receive for these activities.

Table 1. Summary of project activities and compensation

Activities	Participants	Compensation per participant
To pilot test E-PrEP and determine preliminary efficacy		
120 online surveys in control group at each time point (0, 6, 12 weeks)	120 YMCSM participants	(online gift-cards or via a Clincard) $20/$30/$40/$20assess ment
120 online surveys in experimental group at each time point (0, 6, 12 weeks)	120 YMCSM Participants	$20/$30/$40/$20assess ment
Total	240 unique individuals	---

I.1.2. Participants: The 16 peers will be randomized 1:1 to either E-PrEP or BxNow (control condition). They will then recruit n=240 total participants (120 for E-PrEP and 120 to BxNow). Each Peer will recruit approximately n=15 participants. In an effort to support recruitment efforts, members of the research team will buy Facebook ads to outreach to potential participants. We will assign participants randomly with equal number to each of the peer members who are having trouble with recruitment.

Inclusion criteria: Male; Ages 18-29; Have had unprotected anal sex with a male partner in the prior 12 months; Fluent in English or Spanish; Are HIV negative or unknown status (self-report); Identify as Black and/or Latino

Exclusion criteria: YMCSM who do not consent/assent to study; Are currently taking PrEP for HIV prevention, not currently using at least one of 3 social media sites that will be used for the E-PrEP intervention (e.g. not using Facebook, Twitter, Tumblr).

Recruitment:

1. We will first randomize the 16 peers, 1:1 to either E-PrEP or BxNow (control condition).
2. Peers will then recruit n=240 participants total from their personal online social networks to their assigned condition (E-PrEP or BxNow). On average, each peer will recruit approximately 15 participants each.
3. Peers will actively recruit online within their pre-existing social networks using text messages, brief videos, and picture graphics, using whichever mode is deemed appropriate. These recruitment advertisements will be co-developed by the Peers and investigators. Peers will then post the designated messages to their online social networks.
4. **In addition to recruitment lead by peers,** the research team will be buying ads on Facebook to outreach to potential participants. Examples of the ads can be found in the Participant Recruitment File.
5. All recruitment messages will have customized links (enabling tracking of recruitment method and online venue) that will then lead participants to a secure study information and screening page (which will be cross-compatible across devices, e.g. a computer, iPad, or other mobile device such as smart-phones). To prevent inappropriate participants from joining the study and not inadvertently discourage appropriate participants, we will not display specific eligibility requirement on the recruitment messages.
6. Due to technological advancements, the ads will be geographically limited to those potential participants accessing these sites from the Bronx or have indicated a Bronx address on their social media profile. We have used this approach in our recently completed *theSEXword* social

media pilot. While we will not explicitly exclude individuals not living or working in the Bronx, the above methods will help limit issues with potential participants being accidently excluded and inappropriately included. This will also help reduce the burden of questions participants need to answer in the screening page. This approach will enable us to obtain a diverse sample of YMCSM living or working in the Bronx.

7. The screening page will be a very brief online questionnaire. Those meeting eligibility will be taken to an informed consent or assent (if <18 years of age) page, provided with contact information of the PI and research assistant to enable them to ask questions about the study prior to joining. Those not meeting eligibility will be taken to a separate page indicating that they were not eligible (but will not say why, to prevent fraudulent "gaming" of the study) and provided with links to local health resources.
8. To help facilitate understanding of the research study and consent procedures, we will record brief streaming videos of the consent in English and Spanish in addition to having the consent text on the informed consent page. We will provide potential participants with contact information (email, social media messaging link, and telephone) of the PI and research assistant to enable them to ask questions about the study prior to joining. Participants will indicate their consent by entering their social media ID and clicking a button to that effect. Participants will be able to print the consent document or have it emailed to them. After indicating consent, participants will be taken directly to an online baseline survey. Those indicating they do not agree will be taken to a separate page and provided links to local health resources.
9. We will obtain online informed consent prior to providing the self-administered online questionnaires and collection of any automated collection of process data. Online informed consents will be provided in two ways: (1) A recorded video of the informed consent text by a Peer will be displayed and (2) the same information will be provided in an easy to read text format. A link for emailing or direct messaging and contact information with the PI and Research Assistant's office phone numbers will be displayed for potential participants to ask any questions they may have. To indicate consent, an individual will then click a box attesting to their consent and then clicking a "submit" button. After consenting, participants will be taken directly to a baseline assessment survey and after completing the survey, participants will be asked to join the private social media E-PrEP (intervention) or BxNow (control condition) groups on one or more of three social media sites.

I.1.3. Characteristics of participants:

Study Subjects. Study participants will be a total of 240 YMCSM and Trans individuals and between the ages of 18-30. Because of the reliance on Bronx YMCSM Peer Leaders and restricting online recruitment messages and ads to the Bronx (where the population is >85% Hispanic or Black), we do not anticipate having any difficulty recruiting Hispanic and/or Black YMSM subjects. We expect subjects to be about 45% Hispanic, 35% Black, and 20% Black/Hispanic mixed reflecting the population make-up of the Bronx.

Peer Leaders (Peers). In addition to the study participants, we will recruit 16 Bronx based YMCSM Peer Leaders 18-30 to partner with us on this project. The initial pool of Peers will be from our recently completed *theSEXword* pilot and additional Peers as needed, will be recruited through the Adolescent AIDS Program YMSM outreach program or Bronx based community organizations involved in my Bronx Pride Initiative partnership (see Facilities section) and on the Montefiore-Einstein Center for AIDS Research Community Advisory Board, which I help facilitate. Recruited Peers will have all completed participation in a face-to-face HIV prevention and leadership facilitation intervention (the 'Popular Opinion Leader' program[152]or a similar program offered at the Adolescent AIDS Program and at other community agencies), identified by agency staff as an individual who appears to be a "leader" in their specific YMCSM community, has large online social networks (i.e. >300 YMCSM 'friends'). Our current *theSEXword* YMCSM Peers were recruited within 1 week and we had to create a wait-list of individuals wanting to participate. On average, our current Peers have approximately 500 unique MSM of color "friends" on their social networks and it is not unusual for many of them to have >1,000 "friends" or "followers" on their social media profiles. Therefore we do not anticipate having any difficulty recruiting Peer Leaders that meet our criteria and are appropriate for this project.

Training in Ethical Conduct of Research for Peers. Although the Peers are not study subjects, but rather members of the research team, we will make sure that Peers have a clear understanding of their roles in this capacity. We will initially conduct a two-session training with the Peers where they will go through our community research ethics training. I adapted this training from a World Health Organization training manual for lay community members, such as our Peers, participating as 'community researchers' to make accessible to them training in research ethics. It covers topics in history of research ethics, privacy and confidentiality, vulnerable subjects, ethical recruitment practices, protecting against risks, minimizing risks, and personal safety and conduct. This training has previously used with community partners for whom the CITI course is inaccessible due to literacy and/or language barriers. Additionally, we will have ongoing trainings throughout the project period in online privacy, security issues, and confidentiality with information. Peers in the study are not key personal, however we believe it is important that they do understand research ethics.

I.2. Sources of materials. We will collect in-person qualitative interview data, survey data, publicly accessible online process data, and website usage statistics.

Feasibility and Usability measures will be collected from automated online and Internet data capture available through dashboards of the social media sites and through Google Analytics. This data will be online screen-name or ID, time spent on certain study sites (where feasible), exposure to study materials (e.g. pictures, videos), indication if a participant "liked" a post, and if they shared a post or study material. We will also collect data about their connection to a Peer (e.g. direct member of a Peer's social network, indirect member, and number of mutual 'friends'). Although all of this information is technically public or can be publicly available, we will take additional steps to ensure confidentiality of participants. All automated process data will be de-identified if it could be used to identify a participant in real-time or virtually (e.g. screen-names will all be turned into a study-id).

Effectiveness measures will come from the online assessments/surveys collected at 0, 6, 12 weeks. We will use a HIPAA compliant web survey software (i.e. SurveyGizmo.com) to collect survey data. This information is stored on HIPAA compliant, encrypted cloud servers. The data will be downloaded to the PI's secure password protected office computer. Surveys will not contain personal identifiers, but will contain a study ID associated with a participant's social media profile. The "Key" associating the study ID to a participant's social media profile will be kept in a password protected encrypted file on the PI's office computer. It will not be possible using the survey data for anyone to figure out the actual or online identity of a participant. We will also collect de-identified IP addresses to aid us in identifying potentially duplicate respondents.

I.3. Vulnerable population. Young men who have sex with men could be vulnerable due to their status as a **stigmatized population in society and further stigmatization could be possible if their status as a participant in an HIV prevention intervention is revealed.** In the following sections, we discuss these risks and procedures to minimize them and believe that the risks to participation in the proposed study are minimal.

I.4. Potential risks to subjects. We believe that the risks posed to participation in our study are minimal and no greater than what individuals encounter in their regular use of the Internet and social media sites. The primary risks of this study are: (1) breach of confidentiality leading to embarrassment or "outing" of an individual's sexual orientation, (2) breach of confidentiality leading to disclosure of an individual's participation in a HIV prevention intervention, (3) inconvenience and discomfort associated with interviews, and (4) potential side effects related to the uptake of PrEP

Confidentiality issues: We will collect limited personal information from participants to facilitate follow-up and will be asking personal questions about substance use, HIV risk behaviors, and sexual identity and orientation. We have outlined procedures to address maintaining confidentiality below (**see I.5**).

Inconvenience and discomfort associated with interviews: Participants will be asked about HIV risk behaviors, sexual activity, and/or substance use. It is possible that such questions could produce anxiety in participants. Participants will be instructed that they may refuse to answer any question without providing justification and/or may withdraw from the study if this occurs.

Fear that refusal to participate will affect relationship with Peers: The participants will have varying degrees

of connections with one of the Peers. In the informed consent process, they will be clearly instructed that refusal to participate will in no way affect their relationship with the Peer(s) and Peers will also make this known to their social networks during the recruitment process. We will also include this point while training (or re-training) Peers in ethical conduct of research that it is okay for individuals to refuse and that this refusal should not be taken personally.

Potential Risk Compensation if PrEP is adopted: It is possible that some participants, who ultimately adopt PrEP and start using this medication for prophylaxis, may potentially 'risk compensate' by using condoms less frequently or increasing their number of partners. While the clinical trials to date have not shown this to be the case, this is an area that we will pay close attention to in our intervention. The E-PrEP intervention will provide repeated education and discussion opportunities around risk compensation and how PrEP must be used in combination with other risk reduction strategies such as consistent condom use and decreasing number of partners. Our assessment surveys will collect and monitor this data.

Potential side effects from PrEP if adopted: This trial is not providing PrEP directly to participants, but rather, as one component, linking participants to routine comprehensive primary care health centers where they could obtain/be prescribed PrEP. Like any medication therapy, there are potential side-effects related to using the medication. Side effects related to current oral PrEP (emtricitibine-tenofravir) have been reported to be minimal with no major risks or warnings identified currently. While it is the prescribing providers' responsibility to monitor the patient for potential side-effects, we will also monitor for potential side-effects among participants who report using PrEP. At each assessment during the trial and during the follow-up (0, 6, 12 weeks), we will ask questions to elicit information about potential side effects for those participants indicating that they have started using PrEP and to solicit information about if the participant is having adequate follow-up and lab monitoring (e.g. obtaining labs to monitor renal function, getting regular HIV testing, etc.). The online assessment will have pre-programmed prompts for those PrEP users reporting inadequate monitoring and will provide brief education on PrEP monitoring and inform them to follow-up with their provider to obtain monitoring labs and/or testing.

I.5. Adequacy of protection against risks

We will follow procedures as outlined by the National Institute of Mental Health (NIMH) Internet-based Research Interventions: Suggestions for Minimizing Risk (2007) and other evolving best practices in ethical conduct of social media and Internet research.[95,135,153-163] We will additionally work with our social media consultants to ensure technical capacity of maintaining ongoing security and privacy. Peers will also not have direct access to raw or un-summarized data to protect confidentiality of participants.

Recruitment and informed consent: We will obtain online informed consent prior to providing the self-administered online questionnaires and collection of any automated collection of process data. Online informed consents will be provided in two ways: (1) A recorded video of the informed consent text by a Peer will be displayed and (2) the same information will be provided in a easy to read text format.[160,164] A link for emailing or direct messaging and contact information with the PI and Research Assistant's office phone numbers will be displayed for potential participants to ask any questions they may have. To indicate consent, an individual will then click a box attesting to their consent and then clicking a "submit" button. After consenting, participants will be taken directly to a baseline assessment survey and after completing the survey, participants will be asked to join the private social media E-PrEP (intervention) or BxNow (control condition) groups on one or more of three social media sites.

Protection against risk: Questions pertaining to substance abuse, sexual activity and identities requires special sensitivity to issues of confidentiality. Participant confidentiality will be carefully protected. We will institute the following processes to ensure confidentiality is maintained:

1. We will obtain a Certificate of Confidentiality to protect participants' potentially sensitive information.
2. **Publication/presentation of results:** We will not identify subjects by name, online screen-names or IDs.
3. **Managing the matter of anonymity and/or false information of research participant/study:** We will conduct Face-to-Face meetings with Peers and the supporting research team to discuss site activity, messaging, and member profiles and scan content for false information. To protect anonymity while retrieving viable information, research participants will be able to join SM sites using pseudonyms and will be asked to provide basic demographic information including age, email address and ethnicity over the

Internet. Email addresses will be verified by sending an email to research participants and requiring a verification response via clicking a link to the SM site. To protect false information, participants will provide basic demographic information again when participating in the assessment surveys, and online gift-card incentives that will be provided for completing surveys can only be sent to an email address once and affiliated social media account once for each data collection wave.

4. **Protecting participants from research "posers":** We will provide research participants with options for verifying the credentials of the researchers and approval of the study through provided contact information of the PI, research assistant, and our local IRB and approval number (phone number, email, institutional website); a signed certificate and SSL (Secure Sockets Layer) for all data transfer over the Internet will be used; participants with be given the option to print the informed consent page for their personal records and receive it via email from the study team.
5. **Monitoring the research participant's well-being and building trust:** If a participant reveals symptoms of psychological distress via online messaging and/or activity, appropriate referrals and follow-up care and intervention will be made by Peers and/or the research assistant in accordance with a developed resource guide. All efforts will be made to link the online participant to resources at the Adolescent AIDS Program, a Montefiore community health center, or community agency as appropriate. Research participants will be informed of their participation in the study, the duration of the study (12 weeks total) and that all online activity will be observed by peers, the research assistant, and the PI via the online informed consent page. The research assistant will supervise the Peers in documenting and printing all direct messaging and private conversations held with the study social media site members and stored in doubly encrypted files and secure locked filing cabinets in the PI's office.
6. **Addressing the lack of in-person communication and possible needs of research participants:** Graphics and video will be used for participants to help overcome limited literacy. Peers will develop profiles and interactive sites in both Spanish and English. The developed resource guide will detail how to remove research participants from the study in the event of an emergency or meeting exclusion criteria. These procedures will include, but are not limited to establishing procedures to facilitate immediate response to each possible risk, calling the police, or contacting an online friend or family member. Participants will be able to directly contact the research team (PI and research assistant) through direct messaging on the social media sites, email, or telephone and this information will be readily accessible on all social media sites used for the study.
7. **Managing confusion among research participants and debriefing:** Peers will remind participants of the on-going research at least once a month throughout the 6-week active intervention period and 6 week post-intervention follow-up period and conduct debriefing over the social media sites. Research participants will have the opportunity to leave comments and ask questions about the online assessments/surveys both before and after completion, and additional contact information of the research team will be made readily available to all participants.
8. **Overcoming Internet limitations of privacy and confidentiality:** An electronic, password protected and encrypted system will be developed to store analyses, and social media activity will remain private to study participants.[164] Research participants will be informed of how communications are recorded and stored during the online informed consent process. Due to the ever-changing and evolving nature of privacy issues on social media sites, we will review privacy settings for all social media study sites at least every four weeks and adjustments will be made to the study sites as necessary.

   Data analyses and reporting will be conducted using de-identified data in so that no participants will be identifiable. In order to deliver electronic gift card incentives, participants will be asked to provide their profile name and an e-mail address where we can send incentives, after completion of the survey – and this information will not be linked to a their recently completed or incomplete survey/online assessment. When reporting data, survey results will summarize demographic information, including age group, gender and race/ethnicity for no fewer than 10 participants. All participant responses will be kept confidential. Only research staff, and *NOT* the Peers will be able to review raw survey responses and un-summarized web activity. At all times, data collected for the project will downloaded onto secure servers and stored in password protected encrypted files. Peers will not have access to this data to help maintain confidentiality of participant's data.
9. **Addressing the possibility of recruiting a biased sample:** Our theoretical model, 'Diffusion of Innovations' holds that the efficacy of a diffusion intervention depends on the connection between an

individual and members of their networks and our intervention capitalizes on this point. While biases in online recruitment for this population are unknown at this time, our recruitment strategy may potentially be less biased than studies involving in-person recruitment. Strategies now exist that allow us to use social media for instantaneous display of a recruitment post or message to all members of the Peers' online network on a given social media platform. This potentially provides opportunities for a more diverse sample, than might be had if it were based on in-person recruitment approaches – as in-person approaches selects for participants who more frequently interact with a given recruiter, an issue that is less important online. Regardless, we will pay close attention to this issue, as best practices for online recruitment and sampling strategies are constantly evolving.[130,135,136,155,165-167] Ongoing discussions with Dr. Keith Horvath (consultant) and staying current on this topic through ongoing literature review and conference attendance will inform changes, if any, that will be made to our proposed approach to reduce potential bias. Additionally, we (PI) will provide thorough training to the Peers in how to target YMCSM. The Peers will also represent diverse YMCSM communities in the Bronx, further aiding in recruitment of a broad sample of 18-29yo Bronx YMCSM. In addition to implementing best practices for reducing bias in online recruitment, collection of key sociodemographic data will enable us to compare the groups at baseline.[60,119,131,135,138-140,166,168]

10. **Risk Compensation:** The E-PrEP intervention will include substantive education and discussion around risk reduction strategies and make it very clear that PrEP has been designed to be used with these other behavioral strategies to reduce HIV acquisition risk and does not provide complete protection by itself. We will monitor for evidence of risk compensation by collecting data in our assessment surveys about HIV risk behaviors and evaluate participants' HIV risk behaviors in relation to PrEP intention and use. At the conclusion of the trial, we will attempt to link any individual showing evidence of risk compensation in further education and counseling with online and in-person resources.

11. **Side Effect Management:** While it is the prescribing providers' responsibility to monitor the patient for potential side-effects, we will also monitor for potential side-effects among participants who report using PrEP. At each assessment during the trial and during the follow-up (0, 6, 12 weeks), we will ask questions to elicit information about potential side effects for those participants indicating that they have started using PrEP and to solicit information about if the participant is having adequate follow-up and lab monitoring (e.g. obtaining labs to monitor renal function, getting regular HIV testing, etc.). The online assessment will have pre-programmed prompts for those PrEP users reporting inadequate monitoring and will provide brief education on PrEP monitoring and inform them to follow-up with their provider to obtain monitoring labs and/or testing.

I.6.Potential benefits to subjects and others. The potential benefit to participants in this study could be linkage-to-care, access to HIV/STI prevention and testing services otherwise difficult to obtain, and access to credible information on new and existing HIV prevention tools. But all participants may not realize these benefits and there will be no other direct benefits to participants. However, if effective, E-PrEP could be implemented broadly and rapidly diffuse information on available HIV prevention tools and improve linkage to HIV prevention and treatment services for YMCSM, a hard-to-reach population. Additionally, E-PrEP could have significant public health benefit by reducing the HIV burden in YMCSM and the broader population.

Potential Benefits to control condition participants: Participants in BxNow (attention matched control condition) will receive non-overlapping health information about general health topics including physical fitness and nutrition during the 6 week intervention period and linkage-to-care information for comprehensive primary care which would include access to providers who prescribe PrEP. Additionally, they will receive basic information about PrEP and links to further information and local resources at the start of the trial. At the end of the follow-up period (at 12 weeks), after completing the final survey, participants will be given access to all E-PrEP components, information about HIV/STI testing, risk reduction strategies, local resources for sexual health, and information about PrEP. We agree with our current YMCSM Peers and YMCSM community advisory board who advocated for this approach to address issues of *Fairness* and *Justice*, as HIV is a huge burden for this community.

In addition, at the end of the follow-up period (after 12 weeks), both intervention and control groups will be provided again with information about in-person services and we provide direct access to the Adolescent AIDS Program linkage-to-care coordinator and Montefiore Medical Center's primary care linkage-to-care coordinator.

I.7. Risk/benefit ratio. E-PrEP has the potential to increase reach of HIV prevention programs and services, and reduce HIV risk behaviors in YMCSM, but will require pilot testing and refinement. If effective, E-PrEP could be broadly implemented by health centers and community-based organizations, and reduce HIV transmission and promote healthy behaviors. Given the steps that we will take to minimize the chances of breach of confidentiality, participating in this study presents low risk and the risk/benefit ratio is favorable.

I.8 Ethical Principles considered for the online E-PrEP intervention (adapted from Bull et al. 2011)[164]

Ethical principles and issues	**Issues pertinent to the E-PrEP intervention**	**How E-PrEP will address the issue**
Beneficence	Special care needs to be taken to justify why the technology modality chosen is the best for the *participant*, not the health promoter.	Nearly all youth and young adults in the U.S., including YMCSM access Internet and social media sites today; there is unprecedented opportunity to reach an otherwise hard-to-reach YMCSM.
		We are using Peers with large online networks to to tap into networks of hard-to-reach individuals; this could potentially extend reach and beneficence.
Comprehension in informed consent	Lack of immediate and real-time engagement with participants at the time of study enrollment online means researchers cannot readily assess comprehension.	Participants are offered a brief summary of the consent, a video of the consent, links to the detailed consent; and e-mailed copy of the consent. Links on the social media sites will also allow participants to click directly to the consent or short facts about the E-PrEP study.
		The first question on the baseline survey will ask participants to also indicate if they have read and understand the informed consent.
Information and comprehension related to study procedures	Because interventions and data collection occur online, we will need to offer multiple opportunities for the YMCSM participants to understand study procedures.	See information above on allowing access to informed consent materials.
		We will ask participants to offer feedback on the social media study sites or on their assessment surveys, re: their understanding of the study and what we are asking them to do.
Equity	(1) "Digital divide" issues mean that the benefits and risks associated with Internet-based health promotion are not equally shared across groups. Poor and minority youth have less access to new technology interventions and are at increased risk of HIV infection. (2) The intervention is promoting a prevention tool/medication that may not be available or accessible to all, especially given that poor and minority young people have less access to health care.	(1) Our preliminary work and other studies show the digital divide is rapidly narrowing, with ubiquitous use of social-media and Internet by poor and minority young adults, including YMCSM. Because YMCSM are at higher risk for HIV, our study targets this very population. (2) Research on PrEP uptake is in its infancy and we still have much to learn about how to enhance PrEP use in at-risk communities, including how to improve access to PrEP and related services for *all* who may benefit from it. Currently, not all persons whose risk profiles suggest they are appropriate for PrEP have access to this new technology. However, even those who are appropriate candidates and currently have access to PrEP are not yet taking full advantage. Interventions to promote PrEP uptake among those with access will inform subsequent interventions targeted to those who may be more difficult to engage and treat. The proposed project is thus a critical first step in a line of research to make PrEP available to those in most need. Similar to many other biomedical interventions (e.g. antiretroviral therapy for HIV infection), PrEP access hinges on access to medical care. Montefiore Medical Center has long been at the forefront of providing high quality medical care to marginalized groups who often have poor access to care (e.g. immigrants, racial/ethnic minorities, homeless persons, injection drug users, HIV-infected or at-risk persons). Montefiore has a robust network of 26 community health centers and other service centers across the Bronx, and social workers, clinical pharmacists, and other on-site staff all have extensive experience helping patients navigate patient assistance programs for medications and other types of health services. Uninsured patients who are not eligible for Medicaid or other types of coverage, may receive charity-care or placed on a highly affordable sliding-scale based on income.

		To assist prospective PrEP users with cost, commercial insurance and Medicaid in New York and other States cover PrEP and access is rapidly growing. Additionally, the manufacturer of emtricitibine-tenofovir (Truvada) has implemented a patient assistance program to help patients without coverage or who cannot afford PrEP; this program extends to ALL including immigrants or undocumented individuals.
Fairness	Control group participants may not be exposed to potentially beneficial information about HIV, and may not benefit from PrEP uptake.	At the beginning of the trial, the control group will be given basic information aboutAt the end of the 12 week follow-up period (end of trial and follow-up), we will provide access to all educational intervention materials to control group participants and continue to be accessible to answer any questions, concerns, and provide access to Montefiore's linkage-to-care coordinator.
Confidentiality	There is little control over privacy in situations where evaluation data are collected online; Some social media sites have been involved in public scrutiny over confidentiality of its' site members.	Participants will be asked to join a private group or feed on a social media platform. We do not invite participants to become a 'friend' or an associated with study staff (i.e. PI, RA, Consultants), thus we have no access to personal information on profiles, other than what is already publicly available online. We will also inform all participants after they join on how to monitor and change their privacy settings, further enhancing their control.
		While Peers will be recruiting participants for this study (as they do now for many in-person studies), Peers will have no access to participants' survey data.
		Participants will be able to post information to the private study groups/feeds as they see fit – sharing as much or as little as they prefer; study sites will be monitored multiple times each day and incorrect or inappropriate information removed.
HIPAA data security and privacy regulations	Data collected in a clinical setting are Health Insurance Portability and Accountability Act (HIPAA) regulated.	All online surveys will be collected through a secure Internet site, not housed on the social media sites. Data will be stored behind a secure firewall within Albert Einstein College of Medicine.
	When collecting data in community settings or online, institutions vary in requiring researchers to follow HIPAA regulations. HIPAA regulated investigators must store and transfer electronic data using current standards for encryption, password protection, and storage behind firewalls.	Identifiable data from the E-PrEP assessments will be accessible only to the study team (PI and RA); participants will have a study ID that they will be assigned; all information about participants is accessed via this ID only, and other identifiable information is stripped from the study files.

I.9.Importance of study findings. This study will develop an intervention to facilitate access to a new effective HIV prevention tool. The proportion of YMCSM who contract HIV each year is significant and the costs to society of this ongoing epidemic are high. Additionally, most prevention interventions do not reach this highly vulnerable population and contribute to the disproportionate burden of HIV. E-PrEP could help mitigate these disparities by promoting timely access to information and services. As a result of this study, we will have a pilot tested and refined E-PrEP, which will be ready to be tested in a large scale comparative effectiveness study. If effective, this intervention could be broadly implemented and help reduce HIV infection and associated health disparities.

I.10.Data and safety monitoring plan. Because this study is a developmental project with minimal risk and a relatively small number of participants, the Investigators will regularly monitor data and safety (both data related to online safety and privacy as outlined below and potential side effects from PrEP use as outline above.

During the intervention period, the research team will review all process data at the time it is collected, and will examine any distressed participants/events. Specifically, the RA and Dr. Patel will meet with Peer Leaders weekly during the active intervention period (6 weeks) to evaluate for any adverse events or indication of distress that may be indicated by participants posting information on study sites or emailing/messaging the Peers, RA and/or Dr. Patel. All adverse events will be compiled and reported in summary form every 4 weeks and at the conclusion of the study. Unanticipated (non-serious) adverse events will be documented on the Einstein IRB Adverse Event Form, and reported to the IRB within 30 days. Serious adverse events will be reported to the IRB within 48 hours by phone, email or fax. All deaths, which may be made known to the study team through reports of the Peers or other participants, will be reported to the IRB within 48 hours.

Online Safety Monitoring Plan: Study personnel (Peers, Research Assistant, and PI) will monitor all social media site communications and facilitate immediate response to possible behaviors that may characterize a participant as having an increased risk of self-harm or deterioration. All participants will be informed that necessary actions will be taken in the event of an emergency or potential risk as defined by the research team. The peers and the research assistant will be trained to scan and read ALL postings on Study profiles they are responsible for, including written messages, photos and videos, on all social media sites they are managing and an active part of. Each week, the peers will report to the research assistant, who will in turn report to the PI, on the content of the postings and any significant postings related to the E-PrEP intervention. These reports will include any alarming posts that may indicate or allude to self-harm or other unsafe activities.
If a participant is suspected of self-harm or engaging in unsafe activities, the research team will make all efforts to reach out to the concerned participants via the social media site and refer them to appropriate resources to the extent possible online and through the YMSM linkage-to-care coordinators at the Adolescent AIDS Program and Montefiore Medical Center's Primary Care HIV program. In addition, a resource guide that outlines and details unsafe activities and implications of risky behaviors and self-harm will be updated by the research team for the Peers to use to identify individuals in need. This resource guide will include detailed contact information of physical and virtual resources that will appropriately address the needs of such individuals. Every effort will be made to engage a participant in the care that he needs in the event of an emergency or possible risk. These efforts include, but are not limited to, calling the peers, contacting social media site friends, contacting professionals to intervene across the site and referring the participant to offline clinical sources.

I.11.Additional Online Safety and Suicidal ideation protocol
Given that we cannot actually verify real-world identities of participants and will not be collecting residential address/location information (to encourage participation and help minimize perceived breaches of privacy), the following protocol will allow us to monitor and address safety concerns of participants in a timely manner to the extent possible. While our study poses no more than minimal risks, and we do not anticipate encountering such safety concerns listed below (based on our prior experiences implementing similar studies, discussing with other researchers conducting social media based interventions), these measures and protocols will be in place to maintain adequate protection of participants in the event they are needed.

1. Study Team (PI, research assistant, Peers) sees status update display on study social media sites or receives email, phone calls that suggest suicidal ideation. Key words may include "kill myself," "end it all," "not be around anymore," "better off dead" or themes alluding to these concepts. Also includes any description of an intended activity linked to suicide such as "I'm going to jump off a bridge," "I'm going to shoot myself."
    a. Research Assistant and/or Peer notes date and time of reference
        i. Write down name and any available contact information for that profile owner on a document separate from the data collection sheet for this study.
            1. If reference is within the last 7 days, call Dr. Patel immediately. If for some reason he is not reachable by cell phone, home phone or pager within 2 hours, call the IRB.
            2. If reference is older than 7 days but no status updates since, call Dr. Patel immediately.
            3. If reference is older than 7 days, read status updates since and note any references to "feeling better" or similar comments. If these are present, discuss with Dr. Patel the next day during business hours.
2. Protocol for acute Suicidal Ideation noted on profiles (within last 7 days)
    a. Dr. Patel will perform status check on profile owner. Profile owner will be called using the phone listed on the Social Media profile if available or direct messaged, or through any other collected locator information. If the participant is connected to a Peer, the Peer will be notified as they may have other methods of reaching this individual. If participant is not reachable within one hour, we will call 911 to notify of suspected suicidal ideation. This protocol will be made known to participants during the informed consent.