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Tapping the Wisdom of The Crowds to Enhance Condom Use Among Men who have Sex with Men and Transgender Individuals: A Studyl Protocol

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3 4	1	Tapping the Wisdom of The Crowds to Enhance Condom Use Among Men who have Sex
5 6	2	with Men and Transgender Individuals: A Study Protocol
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1 ABSTRACT

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3	Introduction
4	Crowdsourcing has been used to spur innovation and increase community engagement in public
5	health programs. Crowdsourcing is the process of giving individual tasks to a large group, often
6	involving open contests and enabled through multi-sectoral partnerships. Here we describe a
7	crowdsourced video intervention in which a video promoting condom use is produced through an
8	open contest. The aim of this study is to determine whether a crowdsourcing intervention is as
9	effective as a social marketing intervention in promoting condom use among high-risk men who
10	have sex with men (MSM) and transgender male-to-female (TG) in China.
11	
12	Method
13	We held an open contest to develop a crowdsourcing video and obtained a social marketing
14	video from an advertising company. The crowdsourcing contest involved an open call for videos.
15	Entries were judged on capacity to promote condom use, to be shareable or "go viral", and to
16	give value to the individual. 1170 participants will be recruited for the randomized controlled
17	trial. Participants need to be MSM age 16 and over who have had condomless anal sex in the last
18	3 months. Recruitment will be through an online banner ad on a popular MSM webpage and
19	other social media platforms. After completing an initial survey, participants will be randomly
20	assigned to view either the social marketing video or the crowdsourcing video. Follow-up
21	surveys will be completed at both 3 weeks and 3 months after initial intervention to evaluate
22	condomless sex and related secondary outcomes. Secondary outcomes include condom social

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1	norms, condom negotiation, condom self-efficacy, HIV/syphilis testing, frequency of sex acts
2	and incremental cost.
3	Ethics and dissemination:
4	Approval was obtained from the ethical review boards of the Guangdong Provincial Center for
5	Skin Diseases and STI control, the University of North Carolina at Chapel Hill, and the
6	University of California at San Francisco. The results of this trial will be made available through
7	publication in peer-reviewed journals.
8	
9	Trial registration number: This trial was registered in ClinicalTrials.gov (NCT02516930).
10	
11	
12	Strengths and Limitations of this study protocol:
13	• This study protocol was prospectively registered
14	• This study will be a pragmatic, non-inferiority, randomised controlled trial
15	Participants will be self-selecting
16	

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INTRODUCTION

2 Male Sexual Health

Male condoms have long been recognized as an effective method for reducing the risk of HIV and other sexually transmitted diseases $(STDs)^{12}$, but men who have sex with men (MSM) infrequently use condoms in China³⁻⁶. The resulting high incidence of HIV and STDs among MSM suggests the need for novel health promotion campaigns. One systematic review⁷ and one literature review among MSM⁸ demonstrate that social marketing campaigns are effective in promoting condom use, but the persistence of these behavioural changes over time is unclear. We propose that crowdsourcing may substantially improve on existing methods for developing condom promotion campaigns.

12 Crowdsourcing

Crowdsourcing is the process of giving individual tasks to a large group, often involving open contests and enabled through multisectoral partnerships. While the process originated in the private sector⁹, intended to aid research, development and dissemination, it has since been widely adopted. In 2010, the Executive Office of the President of the United States urged federal agencies to utilize crowdsourcing as a method to develop innovative approaches to governmental initiatives¹⁰. A crowdsourcing method differs from a social marketing method in several ways¹¹. Crowdsourcing is a bottom-up approach, utilizing the community for idea generation through implementation rather than relying on the expertise of public health experts. This ensures a higher degree of community engagement than approaches utilizing social marketing do, which tends to be a top-down approach. Crowdsourcing promotes innovation because it removes cognitive fixation, in which innovation is hampered due to new ideas being strongly influenced

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by prior examples¹²⁻¹⁶. By engaging more people with less experience, this phenomenon is
avoidable and allows for a more creative process¹⁷. Our team has previously used crowdsourcing
successfully to develop an effective HIV testing promotion video and images promoting sexual
health.¹⁸

6 OBJECTIVES

Aims and Hypotheses

Specific Aim 1: To compare the effect of a crowdsourced one-minute video to a social marketing
one-minute video in promoting condom use among MSM and transgender male-to-female (TG)
in China. This will be evaluated using data from follow-up surveys at 3 weeks and 3 months
post-video.
Hypothesis 1: Crowdsourced videos are not inferior to social marketing videos to promote
condom use among MSM and TG in China.

15 Specific Aim 2: To compare the cost of using crowdsourcing compared to social marketing

16 methods for developing short videos focused on promoting condom use among MSM and TG

17 individuals in China.

18 Hypothesis 2: A crowdsourced video is cost saving compared to a social marketing video for19 promoting condom use.

21 Specific Aim 3: To compare the effect of a crowdsourced one-minute video to a social marketing

22 one-minute video in changing condom use self-efficacy and self-reported behaviour among

23 MSM and TG individuals in China.

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1	Hypothesis 3: Crowdsourced videos are not inferior to social marketing videos in changing
2	condom use self-efficacy and self-reported behaviour among MSM and TG in China.
3	
4	METHODS
5	Trial design
6	This study will be a pragmatic, non-inferiority, randomized controlled trial comparing two
7	groups – MSM who watch a crowdsourced video and MSM who watch a social marketing vi
8	Allocation to each arm will be done with a 1:1 ratio using a computer-based algorithm. The
9	study is projected to run from November 2015 to February 2016.
10	
11	Setting
12	This study survey will be made available to MSM across China through a popular online port
13	Danlan and gay mobile dating app, Blued. Danlan.com is an online gay community that allow
14	MSM to connect with each other for relationships, events, and communication. The website i
15	maintained by a private corporation, Danlan, which also developed the for-profit app Blued.
16	Blued has become very popular among the MSM population, recently reaching 15 million
17	users ¹⁹ . User personal information is protected and secure. Studies have shown that the Interr
18	has become a popular method for MSM to find partners, with a reported 28.3-88.4% of MSM
19	using the Internet to seek sexual partners ²⁰ . While Internet-based interventions have yet to be
20	widely dispersed in mainland China, early studies show that such e-technology-based approa
21	would be well received ²¹ .
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1 Recruitment

Participants will be recruited using a banner link on a popular MSM app "Blued" (Danlan,
Beijing, China), as well as through announcements sent via Danlan's social media (Weibo, a
microblogging platform, WeChat, a messaging platform, and QQ, a messaging platform). Blued
is China's most popular social networking mobile application among MSM. Blued has 15
million followers with 24% (3.6 million people) daily activity rate¹⁹. Danlan has over 17,000
followers on social media platform Weibo and forwards news via WeChat and QQ to over

8 429,000 followers²².

Eligibility

The survey is voluntary, and to be eligible, participants must state that they were born biologically male, had anal sex with men at least once during their lifetime, have had condomless anal/vaginal sex in the past three months, and are at least 16 years of age. All participants must agree to an online informed consent and provide their cell mobile number. Participants who do not meet these criteria will not be allowed to proceed with the survey.

17 Formative work

Prior to survey development, we will interview key informants specifically about conducting an Internet survey among MSM in China. Survey development will be done drawing on previous surveys and a review of existing literature, focusing on English and Chinese language studies. The survey will be developed in both English and Chinese. The Chinese version of the survey will be piloted online with 150 volunteers to gauge post-intervention condom usage rates and to estimate the necessary sample size for the non-inferiority study. The survey will also be piloted

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with Danlan to ensure there are no problems with distribution. Feedback will be solicited online
regarding question wording and interpretation. Pilot data will not be included in the final
analysis. The purpose of this extensive formative research is to ensure that the online survey is
simple and easy to complete. The CONSORT-Ehealth checklist for online surveys²³ will be used
to ensure completeness. The online survey will be created using Qualtrics Survey Software
(Qualtrics, Provo, Utah) and the videos will be hosted on Tencent Video (Tencent, Shenzhen,

7 China).

9 Interventions

The development of the crowdsourcing video was publicized via open contest. We posted a public call on social media platforms (Weibo, WeChat) for videos promoting condom use awareness. For further promotion, we hosted in-person events at several different college campuses in Guangzhou, China and worked with local community-based organizations to publicize the contest. In-person events included didactic sessions, interactive feedback sessions, and community-driven events. Ten judges, including community health leaders, doctors, business leaders, and researchers, evaluated the videos. . Each judge scored the video entries on a scale of 1-10 (10 the highest score) and a single winner was identified. The winning video will be included in the survey as the intervention arm of the RCT. The one-minute video depicts a group of men dressed as cartoon villains attempting and failing to break down a wall, followed by an image of condoms. Our team will delay announcement of the contest winner to allow time for adequate intervention implementation and comparison. The winning video will be announced 2 weeks after the intervention is evaluated using the 3-month follow-up survey.

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The social marketing video was commissioned from a working group in Jinan. This one-minute
video contains audio of two men about to engage in intercourse, but stopping to discuss condom
use and sexual health as a symbol of love. Script of the video was written by experts in San
Francisco and modified by experts and the gay community in Jinan and Qingdao. The video was
shot by an advertising company based in Jinan.

Data collection

A survey will be developed using the Qualtrics survey tool. Participants will answer 150 questions on socio-demographic information, sexual behaviour, social norms, condom self-efficacy, HIV testing, and community engagement. At the end of the survey, participants will be randomly assigned to one of two intervention arms, the crowdsourcing video or social marketing video, and will view the appropriate video. Participants will not be informed of the video options upon randomization, and will not see the alternate intervention video. Participants will provide mobile telephone numbers, and will receive text message reminders three weeks after initial survey completion to complete the three-week follow-up survey. After completion of the three-week survey, participants will be compensated for the first portion of the study (about \$15.87 USD). Three months after completion of the initial survey, participants will again receive a mobile telephone reminder to complete the three-month survey. After completion participants will receive the second portion of their compensation (about \$7.93 USD).

A data monitoring committee will not be required as this study employs low risk behaviouralinterventions.

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Measures

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Data from survey items on socio-demographics and sexual behaviours will be collected using
standardized survey instruments immediately before video watching, at three weeks after video
watching, and at three months after video watching. Socio-demographic characteristics include
participants' age, place of residence, highest level of education completed, annual income,
marital status, sexual orientation, and sexual orientation disclosure. Behavioural variables
include number of sex acts in the past three weeks, condomless sex with men, condomless sex
with women, condom self-efficacy, and other secondary outcomes (See Appendix 1).

10 OUTCOMES

11 Primary Outcomes

The primary outcome will be any condomless vaginal or anal sex (with any sex partner) among MSM and TG individuals following the video intervention. Using a post-intervention survey, participants will be asked with what frequency they have used condoms since watching the video: all, most, some or none of the time. Individuals who have not had sex in the interval will be classified as having no condomless sex. Condomless vaginal or anal sex will be defined as condomless sex of any frequency (e.g. using a condom none, some or most of the time).

19 Secondary Outcomes

- Post-intervention sex acts
- Condom use social norms
- Condom self-efficacy
 - Condom use negotiation

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HIV testing and self testing Syphilis testing and self testing Incremental cost of intervention associated with respective video interventions per individual reporting increased condom use or no sex since intervention. Other costrelated data from organizations involved in making the intervention videos will be collected. More detailed explanations of secondary outcomes can be found in Appendix 1. Sample size calculation Sample size for this non-inferiority trial was determined assuming an equal probability of reporting condomless sex in the crowdsourced video and social marketing video arms. Assuming a 50% probability of condomless sex in each arm, a one-sided significance level (α) of 2.5%, a non-inferiority limit of 10%, and loss to follow-up of 10%, a total sample size of 1170 individuals was required (585 in each arm) to have 90% power $(1-\beta)$. The sample size was calculated using the formula ²⁴: $n = f(\alpha, \beta) \frac{[\pi_s (1 - \pi_s) + \pi_e (1 - \pi_e)]}{(\pi_s - \pi_e - d)^2}$ where π_s and π_e are the true probabilities of reporting condomless sex in the social marketing video (standard) and crowdsourced video (experimental) intervention groups, respectively, d is the non-inferiority limit, and $f(\alpha,\beta) = \left[\Phi^{-1}(1-\alpha) + \Phi^{-1}(1-\beta)\right]^2$ where Φ denotes the cumulative

distribution function of the standard normal distribution.

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1 Randomization and allocation

Participants will be randomly assigned to one of the two intervention videos using an electronic randomizer tool available through Qualtrics. Randomization will occur independently of any other data collected, with participants allocated in a 1:1 ratio to one of the two arms. Participants will not be informed of which video (crowdsourcing or social marketing) they are assigned to.

- **DATA ANALYSIS**
- 8 Primary analysis

9 The primary analysis will evaluate the non-inferiority hypothesis comparing the two 10 interventions, as well as the superiority hypothesis. The difference in proportions having 11 condomless sex (crowdsourced - social marketing) will be computed, with a corresponding two-12 sided 95% Wald confidence interval. The crowdsourced intervention will be declared noninferior to social marketing if the upper confidence limit is below 10%. If the upper confidence 13 14 limit is below 0%, then the crowdsourced intervention will be declared superior to social 15 marketing. 16 17 18 Effect modification analysis 19 Effect modification analyses will be under taken based on prior exposure to the condom 20 promotion video viewed by the participant to assess whether this exposure modified the effect of 21 video intervention arm upon the primary condom use outcome. A linear probability model will

- 22 be used to evaluate effect modification by testing for an interaction between intervention and
- 23 prior video watching.

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1 Missing data plan

If the primary outcome is missing for <11% of participants, then the primary analysis will use a complete-case approach. If the primary outcome is missing for 11 to <20% of participants, then a sensitivity analysis using multiple imputation based on the PROC MI procedure in SAS (Cary, NC) will also be used. If the primary outcome is missing for ≥20% of participants, then multiple imputation will be used in the primary analysis.

8 Secondary analysis

9 Comparison will be made between the two trial arms with respect to each of the secondary
10 outcomes enumerated above and in Appendix 1. Non-inferiority comparisons will also be made
11 between study arms for the subset of individuals who reported sex during the follow-up period (3
12 weeks and 3 months respectively) and causal inference methods will be employed to account for
13 post-randomization selection bias.

- - 15 ETHICS AND DISSEMINATION

16 Ethical review

17 IRB approval was obtained from the Guangdong Provincial Center for Skin Diseases and STI

- 18 Control, University of North Carolina at Chapel Hill, and University of California San Francisco.

- 20 Informed Consent
- 21 All participants will be provided an online consent form immediately prior to survey
- 22 commencement. This online informed consent describes personal data to be collected, explaining
- that data will be used for research purposes. Contact information is provided to participants to

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2 3 4	1	address further questions. Participants will be required to sign the consent and provide a mobile
5 6	2	telephone number as agreement to proceed with the survey.
7 8 9	3	
10 11	4	Confidentiality
12 13 14	5	Data will be collected through the Qualtrics survey tool (Provo, Utah). Data will be transmitted
15 16	6	securely using SSL (TLS) 128 bit encryption across the Internet (HTTP) and located in a secured
17 18 10	7	Qualtrics server in the United States. The server is configured with redundant hard drive array to
19 20 21	8	ensure reliability. Access to the data will be password protected within the server's firewall.
22 23	9	Survey responses will be kept separately from participants' email addresses; the two files will be
24 25 26	10	linked with a non-descript, unique, randomly generated identifier.
27 28	11	Participants will provide mobile telephone numbers, which will be kept separately from data
29 30	12	containing answers to survey items. These telephone numbers will be accessible only to two
31 32 33	13	researchers solely for the means of sending reminders, follow-up surveys and mobile top-up
34 35	14	incentives.
36 37 38	15	
39 40	16	Dissemination
41 42	17	The results of this study will be prepared and submitted for publication in a peer-reviewed
43 44 45	18	journal. Study findings will also be shared through conference abstracts and presentations,
46 47	19	workshops, and to our partnering organizations.
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2 3	1	Guangzhou, China. The funding source had no role in the design of the study and will not have
4 5		
6 7	2	any role during its execution, analyses, interpretation of data, or decision to submit results.
8 9	3	
10 11	4	
12 13 14	5	Competing Interests
15 16	6	None of the authors declare any conflicts of interest.
17 18 19	7	
20 21	8	Ethics Approval
22 23	9	Ethical approval has been obtained from the ethical review boards of the Guangdong Provincial
24 25 26	10	Center for Skin Diseases and STI control, the University of North Carolina at Chapel Hill, and
20 27 28	11	the University of California at San Francisco.
29 30	12	the University of California at San Francisco.
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12	
13	

Probability of primary outcome in control group [*]	Probability of primary outcome in experimental	N evaluable per arm	Total sample size for RCT
	group		
0.50	0.50	526	1170
0.45	0.45	521	1158
0.40	0.40	505	1124
0.35	0.35	479	1066
0.30	0.30	442	984

*Based on the pilot study, 9 of 25 participants (95% confidence interval: 18% to 57%) had

condomless sex at least once in the three-week period immediately following the video

intervention. According to a similar RCT we conducted in 2014, the loss to follow up rate was

about 10%; adjustment for loss to follow up required (N evaluable per arm)/(1-0.1) to be

enrolled. A non-inferiority limit of 0.1 was used for all calculations.

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35 36 37 38 39	
40 41 42 43 44 45	
46 47 48 49 50	2 3 4 5
51 52 53 54 55	6 7 8
56 57 58	9 10

1	Table 2. Incremen	tal costs associat	ted with social 1	marketing and	crowdsourced arms.

Financial costs	Economic costs
Inputs to be capture, can all directly be found in the project financial accounts, main challenge is to allocate across components and to allocate SESH overhead costs	<i>Extra inputs not already captured by financial costs</i>
Money paid for planning and implementation	 For social marketing arm: Personnel of CBOs/CDC (director of movie, actors, film editors) Rental of professional video equipment (if applicable) Building cost (office renting) for CBOs/CDC* Equipment and software cost (if applicable) * For crowdsourced arm: Personnel of SESH (although all volunteer) Judging opportunity cost (volunteer) Steering Committee planning meeting (three one-hour meetings) Building cost (office renting)*
Money paid to launch the survey (start-up)	 In-person promotion costs SESH personnel costs, to design and maintain the program Equipment cost of SESH (computer and other items)* Software (Qualtriae)*
Money paid to the participants (implementation) Money paid for the software used for follow up (implementation)	 Software (Qualtrics)* SESH personnel costs
	• Cost for condoms (from CDC)
	financial accounts, main challenge is to allocate across components and to allocate SESH overhead costs Money paid for planning and mplementation

Appendix 1. Secondary outcomes measured as part of this RCT.

Secondary Outcome	Definition
Incremental cost	Incremental cost, defined as the cost associated with respective
	video interventions (development, start-up, implementation, condot
	use, intervention – see Table 2 for details) per individual who
	reported no sex or sex with a condom during the follow-up period.
Female condomless	Frequency of men, defined as number of men who reported
sex	condomless vaginal or anal sex with a woman divided by the total
	number of men who viewed the video in that arm.
Male condomless sex	Frequency of men, defined as number of men who reported
	condomless anal sex with a man divided by the total number of me
	who viewed the video in that arm
Post-video condomless	Frequency of men, defined as number of men who reported
sex	condomless vaginal or anal sex with any partner within three week
	following the video intervention divided by the total number of me
	who viewed the video in that arm
Frequency of sex acts	Frequency of men, defined as the number of men who had decrease
	total number of sex acts in the three weeks following the
	intervention compared to the three weeks immediately preceding the
	intervention in that arm
Condom use social	Frequency of men, defined as number of men who report higher
norms	levels of social norms when comparing their pre-intervention and
	post-intervention condom use norms*
Condom self-efficacy	Frequency of men, defined as number of men who had an increase
	in self-efficacy when comparing their pre-intervention and post-
	intervention self-efficacy**
Condom negotiation	Frequency of men, defined as the number of men who attempted to
	convince an unwilling partner to use a condom within three weeks
	following the video intervention divided by the total number of me
	who viewed the video in that arm
HIV testing	Frequency of men, defined as the number of men who reported
	being tested for HIV during the interval between watching the vide
	and following up divided by the number of men who followed up
Syphilis testing	Frequency of men, defined as the number of men who reported
	being tested for syphilis (excluding HIV during the interval betwee
	watching the video and following up divided by the number of mer
	who followed up

*Condom use social norms will be measured using six survey items that are each on a five point Likert scale. Increased condom use social norms will be defined as having an increase from baseline in any two of these six survey items and dichotomized accordingly. The condom use social norm outcome will be assessed in the entire group as well as the subgroup of men who were referred by their friends.

**Self-efficacy will be measured using seven survey items that are each on a five point Likert
scale. Increased self-efficacy will be defined as having an increase from baseline in any two of
these seven survey items and dichotomized accordingly. The self-efficacy outcome will be
assessed in the entire group as well as the subgroup of men who were referred by their friends.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Supplementary File: Online Survey Men's Heath Study (Final) About this Study: You are being asked to take part in a research study that will help us better understand sexual behavior and condom use among men in China. Your participation in this project will allow us to develop better interventions to promote condom use and to improve sexual health among men across China. What's Involved?

subset of participants will be asked watch a one minute video. A subset of participants will also be asked to complete up to two additional follow-up questionnaires. The questionnaires will ask you to provide sociodemographic information and information about your sexual behaviors. In order to ensure that your privacy is protected, all of your online responses will be encrypted and securely transferred to our data servers.

If you participate in this study, you will be asked to complete an online questionnaire and a

Upon completion of this study and a 3-week follow up survey, you will receive 100 RMB credit
 to your mobile phone. Eligible participants who also complete the follow-up questionnaires can
 receive up to 150 RMB credit to their mobile phone.

If you have any questions about the research or your participation in the study, feel free tocontact

1		
2 3	1	A. Basic Information (Eligibility Survey) (Q1-5)
4 5	2	A. Dasic Information (Englomety Survey) (Q1-5)
6 7	3	A1. Were you born biologically male or female?
8 9	4	O Male
10	5	• Female (Not eligible to take this survey – Skip to End of Survey)
11 12 13	6 7	A2. What is your date of birth?
14 15	8	• dd.mm.yyy (<i>Calendar input</i>) (Not eligible to take this survey if year is greater than Launch
16	9	day + 1999 or < 16 y/o $-$ Skip to End of Survey)
17 19	10	
18 19	11	A3. In your lifetime have you ever had anal sex with another man?
20 21	12	O Yes
22	13	• No (Not eligible to take this survey – Skip to End of Survey)
23	14	
24 25	15	A4. In the last three months, did you have any anal and /or vaginal sex without a condom with
26	16	any sex partner?
27	17	O Yes
28 29	18	• No (Not eligible to take this survey – Skip to End of Survey)
29 30	19	
31	20	A5. Will you agree to provide us your Chinese mobile phone number? (Answering this question
32 33	21	is required to participate in the survey and to receive your reward for participating. We will not
34	22	distribute your number to any agency or individual. Thank you for your cooperation.)
35 36	23	O Agree
37	24	• Decline (Not eligible to take this survey – Skip to End of Survey)
38	25	
39 40	26	Which carrier are you using right now?
40 41	27	
42	28	• China Unicom
43	20 29	O China Unicom
44 45		 China Mobile China Unicom China Telecom
46	30	
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1		
2 3 4	1	Online Consent Form
5 6 7	2	Title of Study: Men's Health Study
8	3	IRB study number: <u>15-1522</u>
9	4	Principal Investigator: Dr. Joseph Tucker
10 11	5	Dr. Joseph D. Tucker, UNC Project-China, Number 2 Lujing Road, Guangzhou, China,
12	6	
13	7	
14	8	What are some general things you should know about research studies? You are being asked
15	9	to participate in a research study. To join this research study is voluntary. You may for whatever
16	10	reason refuse to join or withdraw your consent to be in the study at any time, without penalty.
17 18	11	Details about this study are discussed below. It is important that you understand this information
10	12	so that you can make an informed choice about joining this research study.
20	13	
21	14	What is the purpose of this study? Innovative approaches to condom promotion campaigns are
22	15	urgently needed. The current strategy to developing many of these campaigns is to repackage old
23	16	ideas rather than create new ones. The purpose of this research study is to understand how
24	17	crowdsourcing can be used to leverage both the high Internet use and willingness to participate
25 26	18	in online forums of young MSM (men who have sex with men) to transform the design and
20	19	implementation of condom promotion campaigns. Crowdsourcing is the process of taking a task
28	20	traditionally performed by a single individual or organization, and instead outsourcing the task to
29	20	a large group to complete in the form of a contest or open call, often enabled by the Internet.
30	22	a large group to complete in the form of a contest of open can, often enabled by the internet.
31	23	How many people will take part in this study? If you decide to participate in this research
32 33	23	study, you will be one of approximately 1170 individuals recruited across China.
34	25	study, you will be one of approximately 1170 merviduals rectance across clima.
35	26	What will happen if you take part in the study? Your part in this research study will last
36	20	approximately 20 minutes. During this study, you will be asked to first complete an online
37	28	questionnaire, and depending on your responses, you may be asked to watch a one minute video
38 39	20 29	afterwards. Upon completion of this initial questionnaire, you will be asked to input your mobile
39 40	30	phone number as a means for the research team to prevent duplicate responses, to send
41	31	reminders, and to distribute rewards for participation. Additionally, some participant will be
42	32	asked to complete up to two additional follow-up questionnaires after three-week and twelve-
43	32 33	week's times. If you do not respond to the initial follow-up request, you will receive a message
44	33 34	reminder. To do this, we will also ask you to provide your QQ number. The study questionnaires
45 46	34 35	
46 47		will ask you to provide sociodemographic information as well as details about your sexual health
48	36	and sexual activity.
49	37	
50	38	What are the possible benefits from being in this study? Research is designed to benefit
51	39 40	society by gaining new knowledge. The proposed study will make important contributions to the
52 53	40	sexual health literature. The field of condom interventions among young MSM in resource-
53 54	41	limited settings is in its infancy. The results from this study will help the research team develop a
55	42	MSM targeted, community-level intervention that will be fielded and evaluated in the Chinese
56	43	setting. Your participation will also help design better interventions to promote condom use
57	44	among MSM in China.
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2		
3	1	
4 5	2	What are the possible risks or discomforts involved from being in this study? We will ask
5 6	3	participants to provide sensitive information about their sexual partners and practices.
7	4	Participants may feel embarrassed, anxious, or otherwise distressed by providing information of
8	5	such a personal nature. Participants may also experience fatigue in response to the proposed
9		
10	6	evaluations (e.g. from looking at a computer screen). Some participants might fear that refusal to
11	7	participate in the study might jeopardize their sexual orientation identity – especially if the
12	8	participant has not come "out" to him or herself and/or the community). Other participants may
13	9	fear that the research staff might "out" them or discuss their private details with other (MSM and
14	10	non-MSM) members in their community. While the risk is minimal, there is still the possibility
15	11	for breaches of confidentiality.
16	12	
17	13	How will your privacy be protected? All data are directly entered into computers as
18 19	14	participants complete the questionnaires. Programs to ensure accuracy, completeness, and
20	15	internal consistency are automated. Data can be readily downloaded and converted to the format
21	16	of commercially available statistical software. During collection of the online portion of the
22	10	
23		study, all data will be transmitted securely using SSL (TLS) 128 bit encryption across the
24	18	Internet (HTTP). SSL providers users with the assurance of access to a valid, "non-spoofed" site,
25	19	and prevents data interception or tampering with sensitive information. The SSL certificate that
26	20	will be used for this project will use 128-bit encryption, the preferred security level of
27	21	government and financial institutions. 128-bit encryption offers protection that is virtually
28	22	unbreakable. For example, if a hacker could crack a standard 40-bit SSL session in a day, it is
29	23	estimated that it would take well beyond a trillion years to accomplish the same thing against a
30 31	24	128-bit SSL session. A dedicated server, which eliminates security issues involved with shared
32	25	hosting environments where hundreds of websites and users reside on one shared web server as
33	26	well as ensuring both physical and network security, will be used to house the data. Data will be
34	27	located in a secured server at UNC Chapel Hill.
35	28	The server will be configured with redundant hard drive array to ensure reliability. Access to the
36	20 29	data will be password protected within the server's firewall. Survey responses will be kept
37		
38	30	separately from participants' email addresses; the two files will be linked with a non-descript,
39	31	unique, randomly generally identifier. Only the PI and a designated senior staff member will
40	32	have the password to access to the "key" that links the nondescript identifier to personally
41 42	33	identifiable information. Cookies will not be used in any way to track participant activity.
43	34	
44	35	What if you want to stop before your part in the study is complete? If at any point in the
45	36	study you do not want to answer a question or no longer want to participate, you can stop
46	37	and withdraw from this study without penalty. The investigators also have the right to stop your
47	38	participation if you have an unexpected reaction, have failed to follow instructions, etc.
48	39	
49	40	Will you receive anything for being in this study? Will it cost anything? Participants who
50	41	are asked to watch a one-minute video will have the opportunity to earn up to 150 RMB
51		
52 53	42	credit on their mobile phone – this credit will be distributed as two separate 100 and 50
53 54	43	RMB mobile phone recharges. Participants will receive a 100 RMB phone recharge upon
55	44	completion of the first questionnaire and 3-week follow up survey, and 50 RMB for the 3-
56	45	month follow up survey if that they are eligible for. There are no costs associated with
57	46	participating in this research study.
58		
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1 2 3	What if you have questions about this study? If you have any questions, complaints, or concerns about the research or your participation in the study, feel free to contact
4 5 7 8 9 10 11	What if you have questions about your rights as a research participant? All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns, or if you would like to obtain information or offer input, please contact the UNC Institutional Review Board at 1-919-966-3113 or by email to IRB_subjects@unc.edu. You may also contact the Guangdong Provincial Skin Diseases & STI Control Center IRB at 020-83027652 or by email to sesh@seshglobal.org.
12 13 14	If you understand and agree to participate in this research study, please select "Agree" from the options below. We thank you for your participation!

1		
2 3		
3 4	1	<u>Survey Access (Q6-7)</u>
5	2	
6	3	6. How did you find out about our research study?
7	4	O Blued's banner ad
8	5	O Danlan webpage banner ad (www.danlan.org)
9 10	6	• Weibo banner ad
11	7	• Weixin banner ad
12	8	• Friend referral
13	9	
14		• SESH referred me through QQ
15 16	10	• SESH referred me through SMS
17	11	
18	12	7. What device are you using to access our research study?
19	13	• Desktop or laptop computer
20	14	O Mobile phone
21 22	15	O Tablet device
23	16	 Desktop or laptop computer Mobile phone Tablet device
24	17	
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1 2	<u>A. Sociodemographics (Q8-15)</u> The next set of questions will ask you to provide some information about yourself.
3 4	A6. What province or province-level city do you currently live in?
5	O Beijing
6	O Tianjin
7	O Hebei
8	O Shanxi
9	O Inner Mongolia
10	O Liaoning
11	O Jilin
12	• Heilong Jiang
13	• Shanghai
14	 Shanghai Jiangsu Zhejiang Anhui Fujian Jiangxi Shandong
15	• Zhejiang
16	O Anhui
17	O Fujian
18	O Jiangxi
19	○ Shandong
20	 Shandong Henan Hubei Hunan Guangdong Guangxi Hainan Chongqing Sichuan
21	O Hubei
22	O Hunan
23	• Guangdong
24	O Guangxi
25	O Hainan
26	O Chongqing
27	O Sichuan
28	O Guizhou
29	O Yun An
30	• Xizang (Tibet)
31	O Shaanxi
32	 Yun An Xizang (Tibet) Shaanxi Gansu
33	O Qinghai
34	O Ningxia
35	O Xinjiang
36	O Hong Kong
37	O Aomen
38	
39	A7. What city do you currently live in? (<i>Text input</i>) (Do not display if answered
40	北京,上海,重庆,天津,香港,澳门 to A6)

1		
2 3	1	
4	1	
5 6	2	A8. What is your current legal marital status (referring to women)?
7	3	O Not married
8	4	O Engaged or Married
9 10	5	O Separated or Divorced
11	6	O Widowed
12	7	
13 14	8	A9. Are you currently enrolled as either a full-time or part-time student?
15	9	O Yes
16	10	O No
17 18	11	
19	12	A10. What is the highest level of education that you have completed ?
20	13	• High school or below (including Zhongzhuan)
21 22	14	O Some college (Dazhuan)
23	15	O College/Bachelors
24	16	O Masters/PhD
25 26	17	
27	18 19	A11. What is your total <u>individual</u> monthly income from all sources? Q Less than 1500 RMB
28	20	• Less than 1500 RMB • Between 1500 and 3000 RMB
29 30	20 21	
31		O Between 3001 and 5000 RMB
32	22	O Between 5001 and 8000 RMB
33 34	23	• Greater than 8000 RMB
35	24 25	A12. What do you primarily consider yourself to be?
36	23 26	• Gay
37 38	20	• Guy • Bisexual
39	28	• Straight/Heterosexual
40	29	• Straight Heerosexaal
41 42	30	O Unsure/Other
43	31	
44	32	A13. Have you spoken with a physician or other health professional (e.g. HIV testing counselor,
45 46	33	pharmacist) about your sexuality or sexual history with men?
47		
48	34	O Yes
49 50	35	O No
51	36	
52	37	B. MSM Basic Situation (Q16-38)
53 54	38	The next set of questions will ask you about your sexual behaviors with other men.
55	39	
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2		
3	1	A "primary partner" is someone who you have sex with regularly and/or have an emotional
4 5	2	commitment to. A "casual partner" is someone who you have sex with and do not have an
6	3	emotional commitment to.
7	4	
8	5	
9 10	6	B1. How old were you during your first insertive sexual encounter?
11	7	years old (Number input)
12 13	8	
14	9	B2. Was your first insertive sexual encounter with a male or female?
15 16	10	• Male (Skip to B4)
17	11	O Female
18	12	• Other
19 20	13	
21 22	14	B3. How old were you when you had sex with another man for the first time?
23	15	years old (Number input)
24 25	16	
26	17	B4. Were you insertive (1) or receptive (0) during your first sexual encounter with another man?
27 28	18	O Insertive (1)
29	19	O Receptive (0)
30	20	• Both insertive (1) and receptive (0)
31 32	<u>2</u> 0	
33	22	P5. Did you use a condem during your first sexual anounter with another man?
34 35		B5. Did you use a condom during your first sexual encounter with another man?
36	23	O Yes
37	24	O No
38 39	25	
40	26	B6. In general, where do you usually go to meet your sex partners (Select all that apply)?
41	27	O Pub digao tagraam or alub
42	28	Spa or bath house, sauna, foot or body massage parlor
43 44	20 29	 Yub, disco, tearooni, or club Spa or bath house, sauna, foot or body massage parlor Park, public restroom, public lawn Internet
45		• Faik, public resultion, public lawn
46	30	
47 49	31	O Other
48 49	32	
50	33	B7. In the last three months, approximately how many male sex partners have you had?
51	34	male say partners (Number input) (If answer <1, skip to and of section)
52 53		male sex partners (Number input) (If answer <1, skip to end of section)
54	35	
55	36	B8. Of the men you have had sex with in the last three months, would you consider one of them
56 57	37	to be a primary sex partner?
57 58		
59		

1		
2 3	1	O Yes
4	2	
5 6		• No (Skip to B16)
7	3	
8	4	B9. In the last three months, approximately how many times per week did you have anal sex
9	5	with your primary partner?
10 11	6	sex encounters per week
12	7	
13	8	B10. How long have you and your primary sex partner been in a relationship?
14 15	9	• Less than three months
16	10	• Between three and six months
17	11	• Between six and twelve months
18	12	• Between one and two years
19 20	13	• More than two years
21	14	
22	15	B11. In the last three months, when you had anal sex with your primary partner, what role did
23 24	16	you assume?
25	17	
26	17	• Always insertive (always 1) (Do not display B15)
27 28	18	• Mostly insertive (mostly 1)
20 29	19	• Both insertive and receptive in similar amounts (Both 1 and 0 in similar amounts)
30	20	• Mostly receptive (mostly 0)
31	21	• Always receptive (always 0) (Do not display B14)
32 33	22	• No anal sex, only oral sex (Neither 1 nor 0) (Do not display B14 and B15)
34	23	
35	24	B12. In the last three months, when you had sex with your primary partner, how frequently did
36 37	25	you or your partner use condoms? (Do not display if "No anal sex, only oral sex" to B11)
38	26	• Never used (Skip to B14)
39	20	• Sometimes used
40 41		
42	28	O Mostly used
43	29	• Always used (Do not display B14, B15)
44 45	30	
46	31	B13. In the last three months, when you had sex with your primary partner did a condom ever
47	32	slip off, tear, or otherwise fail?
48 49	33	O Yes
49 50	34	O No
51	35	
52	36	B14. When you are insertive, the reason(s) you do not use a condom with your primary partner
53 54	37	include (select all that apply):
55	38	• I do not want to use one (e.g. personal preference, uncomfortable)
56 57	30 39	 I do not want to use one (e.g. personal preference, unconnortable) Neither of us has a condom
57 58	57	
59		
60		

2		
3	1	• My partner does not want me to use one
4 5	2	• The condom is of poor quality
6	3	• I do not have time to use one
7	4	• I believe that my partner is loyal to me
8 9	5	• I am loyal to my partner
10	6	• I am drunk or high
11	7	• I am HIV negative or I do not believe I am infected with HIV
12 13	8	 O My partner is HIV negative or I do not believe he is infected with HIV
14	9	• Other
15		S Other
16	10	
17 18	11	B15. When you are receptive, the reason(s) your primary partner does not use a condom with
19	12	you include (select all that apply):
20	13	• He does not want to use one (e.g. personal preference, uncomfortable)
21 22	13 14	• Neither of us has a condom
23		• I do not want him to use one
24	15	
25	16	• The condom is of poor quality
26 27	17	• He does not have time to use one
28	18	• I believe that my partner is loyal to me
29	19	• He believes that I am loyal to him
30 31	20	• He is drunk or high
32	21	• He is HIV negative or does not believe he is infected with HIV
33	22	• I am HIV negative or does not believe I am infected with HIV
34 35	23	• Other
36	24	
37	25	B16. In the last three months, have you had sex with another man who was not your primary
38 39	26	partner?
39 40	20	
41	27	O Yes
42	28	• No (Skip to B23, Should not say "No" to B8 and B16)
43 44	29	
45	30	B17. In the last three months, approximately how many times per week did you have anal sex
46	31	(all casual sex partners combined)?
47 48	32	sex encounters per week
49	33	
50		
51	34	B18. In the last three months, when you had anal sex with a casual partner, what role did you
52 53	35	assume?
54	36	• Always insertive (always 1) (Do not display B22)
55	37	• Mostly insertive (mostly 1)
56 57	38	• Both insertive and receptive in similar amounts (Both 1 and 0 in similar amounts)
58		
59		
60		

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2		
3 4	1	• Mostly receptive (mostly 0)
5	2	• Always receptive (always 0) (Do not display B21)
6	3	• No anal sex, only oral sex (Neither 1 nor 0) (Do not display B21 and B22)
7 8	4	
9	5	B19. In the last three months, when you had sex with a casual partner, how frequently did you or
10 11	6	your partner use condoms? (Do not display if B17 is "0" or B18 is "无肛交, 只有口交(既不
12	7	
13	/	是1也不是0)")
14 15	8	• Never used (Skip to B21)
16	9	• Sometimes used
17	10	O Mostly used
18 19	11	• Always used (Do not display B21, B22)
20	12	
21	13	B20. In the last three months, when you had sex with a casual partner did a condom ever slip off,
22 23	14	tear, or otherwise fail? (Do not display if answer to B19 is "Never used")
24	15	O Yes
25	16	O No
26 27	17	
28	18	B21. When you are insertive, the reason(s) you do not use a condom with a casual partner
29 30	19	include (select all that apply):
31	20	• I do not want to use one (e.g. personal preference, uncomfortable)
32	20	 O Neither of us has a condom
33 34	22	O My partner does not want me to use one
35	23	• The condom is of poor quality
36	23 24	• I do not have time to use one
37 38	2 4 25	• I am drunk or high
39	23 26	• I am HIV negative or I do not believe I am infected with HIV
40	20 27	• My partner is HIV negative or I do not believe he is infected with HIV
41 42	28	• Other
43	20 29	• Other
44 45		
46	30	B22. When you are receptive, the reason(s) your casual partner does not use a condom with you
47	31	include (select all that apply):
48 49	32	• He does not want to use one (e.g. personal preference, uncomfortable)
50	33	• Neither of us has a condom
51	34	• I do not want him to use one
52 53	35	• The condom is of poor quality
54	36	• He does not have time to use one
55 56	37	• He is drunk or high
56 57	38	• He is HIV negative or he does not believe he is infected with HIV
58		
59 60		
		For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1		
2 3	1	
4	1	• I am HIV negative or he does not believe I am infected with HIV
5	2	O Other
6 7	3	
8	4	B23. In the last month, did you have any anal sex without a condom with any male partner? (Do
9	5	not display if answer "1" to B7 and "Always" to B19)
10	6	O Yes
11	7	O No
12 13	8	
14		
15	9	C. Heterosexual Sex Situation (Q39-54)
16	10	The next set of questions will ask about your sexual behaviors with women.
17 18	11	
19	12	A "primary female partner" is someone who you have sex with regularly, have an emotional
20	13	commitment to, and/or have married or engaged to be married. A "casual female partner" is
21	14 15	someone who you have had sex with but do not have an emotional commitment to.
22 23	15 16	C1. Have you ever had vaginal, anal, and/or oral sex with a female partner?
24	10	C1. Have you ever had vaginar, and, and/or orar sex with a remain partner?
25	17	O Yes
26	18	• No (Skip to End of Section)
27 28	19	
29	20	C2. In the last six months, did you have any vaginal and/or anal sex with a female partner?
30	21	O Yes
31	22	• No (Skip to End of Section)
32 33	23	
34		
35	24	C3. In the last six months, approximately how many female sex partners have you had?
36	25	female sex partners (<i>Number input</i>) (If answer <1 then skip to End of Section)
37 38	26	
39	20	
40	27	C4. In the last six months, have you had a primary female sex partner?
41	28	O Yes
42 43	29	O No (Skip to C9)
44	30	
45	31	C5. In the last six months, approximately how many times per week did you have vaginal and/or
46 47	32	anal sex with your primary female partner?
47	33	sex encounters per week
49	34	
50		
51 52	35	C6. In the last six months, when you had sex with your primary female partner, how frequently
52	36	did you or your partner use condoms?
54	37	• Never used (Skip to C8)
55	38	• Sometimes used
56 57	39	• Mostly used
58	57	
59		
60		

1		
2 3		
4	1	• Always used (Do not display C8)
5	2	
6 7	3	C7. In the last six months, when you had sex with your primary female partner did a condom
8	4	ever slip off, tear, or otherwise fail?
9	5	O Yes
10	6	O No
11 12	7	
13	8	C8. The reason(s) you do not use a condom with your primary female partner include (select all
14		
15 16	9	that apply):
17	10	• I do not want to use one (e.g. personal preference, uncomfortable)
18	11	• Neither of us has a condom
19 20	12	• My partner does not want me to use one
20	13	• The condom is of poor quality
22	14	• I do not have time to use one
23 24	15	• I believe that my partner is loyal to me
24 25	16	• I am loyal to my partner
26	17	• I am drunk or high
27	18	• I am HIV negative or I do not believe I am infected with HIV
28 29	19	• My partner is HIV negative or I do not believe she is infected with HIV
30	20	• Other
31	20	
32 33	21	
34	22	C9. In the last six months, have you had sex with another woman who was not your primary
35	23	partner?
36 37	24	O Yes
38	25	• No (Skip to End of Section if "Always" to C6; otherwise Skip to C14 – Should not answer
39	26	"No" to C4 and C9)
40 41	27	
42	28	C10. In the last six months, approximately how many times per week did you have vaginal
43	20 29	and/or anal sex (all casual sex partners combined)?
44 45	30	
46	30 31	sex encounters per week
47	51	
48 49	32	C11. In the last six months, when you had sex with a casual female partner, how frequently did
50	33	you or your partner use condoms?
51	34	• Never used (Skip to C13)
52 53	35	• Sometimes used
54	36	• Mostly used
55	37	 Always used (Do not display C13; Skip to End of Section if "Always" to C6)
56 57	38	- Annugs used (Do not display C13, Skip to End of Section in Anways to Co)
58	50	
59		
60		

3 4	1	C12. In the last six months, when you had sex with a casual female partner did a condom ever
5	2 3	slip off, tear, or otherwise fail? • Yes
6 7		O No
8	4 5	
9 10	6	C13. The reason(s) you do not use a condom with a casual female partner include (select all that
11 12	7	apply):
13	8	• I do not want to use one (e.g. personal preference, uncomfortable)
14 15	9	• Neither of us has a condom
16	10	• My partner does not want me to use one
17	11	• The condom is of poor quality
18 19	12	• I do not have time to use one
20	13	• I am drunk or high
21	14	• I am HIV negative or I do not believe I am infected with HIV
22 23	15	• My partner is HIV negative or I do not believe she is infected with HIV
24	16	• Other
25	17	
26 27	18	
28	19	C14. In the last month, did you have sex without a condom with any female partner? (Do not
29	20	display if answer "1" to B7 and "Always" to B19)
30 31	21	
32	22	O Yes
33	23	O No
34 35	24	
36	25	
37	26	D. Sexual Behavior (Q55-63)
38 39	27	The next set of questions will ask about any "risky" sexual behaviors that you may or may not
40	28	have engaged in with other men and/or women.
41 42	29	
43 44	30	D1. In the last three months, did you ever have sex while you were drunk (from drinking
44 45	31	alcohol)?
46 47	32	O Yes
48	33	O No
49 50	34	
51	35	D2. In the last three months, was you partner ever drunk (from drinking alcohol) while you had
52 53	36	sex?
54 55	37	O Yes
56	38	• No (Skip to D4 if "No" for D1 and D2)
57	39	
58 59		
60		

1 2		
3 4 5	1 2	D3. In the last three months, how often did you have sex while you and/or your partner was drunk?
6 7	3	O Never
8	4	O Rarely
9 10	5	O Occasionally/Sometimes
11	6	O Very often
12 13	7	O Always
14	8	
15 16	9	D4. In the last twelve months, did you ever use "meth" before or during sex?
17 18	10	O Yes
19	11	O No
20 21	12	
22	13	D5. In the last twelve months, did you ever participate in group sex with other men?
23 24	14	• Yes (Display D6)
25	15	O No
26 27	16	
28	17	D6. During your most recent group sex experience, did you have any anal sex without a
29 30	18	condom?
31	19	O Yes
32 33	20	O No
34	21	
35 36	22	D7. In the last twelve months, were you ever paid (with money or gifts) to have sex?
37	23	O Yes
38 39	24	O No (Skip to D9)
40	25	
41 42	26	D8. In the last twelve months, has your main source of income come from having sex with
43	27	customers?
44 45	28	O Yes
46	29	O No
47 48	30	
49	31	D9. In the last twelve months, have you ever paid (with money or gifts) a man to have sex?
50 51	32	O Yes
51 52	33	O No
53	34	
54 55	35	<u>E. Sex Tourism (Q64-79)</u>
56 57 58 59 60	36 37	The next set of questions will ask about leaving your city and/or China to purchase sex.
00		

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1		
2 3 4 5	1 2	E1. Have you ever purchased sex (with money or gifts) while traveling outside of your city of residence?
6 7 8	3 4	YesNo (If "No" skip to End of block)
9 10	5 6	E2. Have you ever traveled outside of your city of residence with the primary purpose of
11 12 13	7 8	purchasing sex? • Yes
14 15 16	9 10	O No
17 18 19	11 12 13	 E3. When you traveled to purchase sex, did you travel within China or leave the country? O Within China (Display E4a) O Outside China (Display E4b)
20 21 22 23	13 14 15	 O Both (Display E4a and E4b)
24 25 26	16 17 18	E4a. Which city/cities in China did you travel to when you purchased sex? (<i>Text Input</i>)
27 28 29 30	19 20	E4b. Which country/countries and cities did you travel to when you purchased sex? (<i>Text Input</i>)
31 32 33	21 22 23	E5. How did you arrive at your destination?
34 35 36	24	 Car Train Aimlane
30 37 38 39	25 26 27	• Airplane• Ship
40 41	28 29	E6. Why did you decide to purchase sex while traveling?O I was afraid of seeing someone I know in my hometown
42 43 44	30 31	 O Sex is less expensive at the location I traveled to O There was less likelihood that I would have to use a condom if I purchase sex
45 46	32	• I am unable to purchase sex in my hometown
47 48 49	33 34 25	 I wanted to try sexual intercourse with another gender I was drunk or using drugs, I did not plan it
50 51 52	35 36 27	E7. When you purchased sex while outside your city of residence, who did you purchase sex
53 54	37 38 20	from (select all that apply)? • Men • Wemen
55 56 57 58 59 60	39 40	 Women Transgender

2		
3	1	
4	2	E8a. When you purchased sex while outside your city of residence, have you ever had any
5 6	3	vaginal sex without a condom? (Display if "Women" or "TG" for E7)
7	4	• Yes (Display E17)
8		
9	5	O No
10 11	6	
12	7	E8b. When you purchased sex while outside your city of residence, have you ever had any anal
13	8	sex without a condom?
14 15	9	• Yes (Display E17)
16	10	O No
17	11	
18	12	
19 20	13	E9. Once you were at your travel destination (during your most recent trip abroad), how did you
21	14	find someone to purchase sex from (select all that apply)?
22	15	• Mobile app portal
23 24	16	O Online (not an app) portal
25	17	O In-person proposition
26	18	• Local establishment
27	10 19	
28 29	19	
30	20	E10. During your most recent experience when you purchased sex while abroad, approximately
31	21	how many sex partners did you purchase? (Please enter "0" partners if no partners of the
32 33	22	following type)
34	23	male sex partners (Number input)
35 36	24	female sex partners (Number input)
37	25	transgender sex partners (Number input)
38	26	uuisgender sex purchers (itumser input)
39	27	E11. During your most recent experience when you purchased sex while traveling,
40 41		
42	28	approximately how much did you pay (RMB) for your last sex encounter?
43	29	(Text Input)
44	30	
45 46	31	E12. During your most recent experience when you purchased sex while traveling, of what
47	32	nationality was your last partner?
48	33	(Text Input)
49	34	
50 51	35	
52	36	E13. During your most recent experience when you purchased sex while traveling, the reason(s)
53 54	37	you did not use a condom include (select all that apply):
55	57	you are not use a condom merade (select an that appry).
56		
57		
58 59		
60		

2		
3 4	1	• I did not want to use one (e.g. personal preference, uncomfortable)
4 5	2	• I did not want my partner to use one
6	3	• Neither of us had a condom
7 0	4	• My partner did not want to use one (e.g. personal preference, uncomfortable)
8 9	5	• My partner did not want me to use one
10	6	• The condom was of poor quality
11	7	• I did not have time to use one
12 13	8	• My partner did not have time to use one
14	9	• I was drunk or high
15	10	• My partner was drunk or high
16 17	10	• I am HIV negative or I do not believe I am infected with HIV
18	12	
19	12	• My partner was HIV negative or I do not believe my partner was infected with HIV
20 21		E14 How strengthy do you agree with the following statement. During my most recent
22	14 15	E14. How strongly do you agree with the following statement: During my most recent
23	15	experience purchasing sex while traveling, I behaved with less caution than I normally would
24	16	while at home
25 26	17	O Strongly yes
27	18	O Yes
28	19	O The same
29 30	20	O No
31	21	O Strongly No
32	22	
33 34	23	E15. Did you travel alone or with others?
34 35	24	O Alone
36	25	• With others
37	26	
38 39	27	E16. During your most recent experience when you purchased sex while traveling, did you ask
40	28	your partner about his/her HIV status before having sex?
41	29	O Yes
42 43	30	O No
44	31	
45	32	
46 47	33	F. Condom Behavior (Q80-96)
48	34	<i>The next set of questions will ask about your practices and attitudes in regards to condom use.</i>
49	35	The new set of questions will ask doold your practices and attitudes in regulas to condom use.
50 51	36	F1. In the last three months, how often did you carry a condom with you when there was the
52	37	possibility you may have sex later?
53	38	O Always
54	39	O Sometimes
55 56	40	• Sometimes • Hardly ever
57	40 41	O Never
58	41	
59 60		

1		
2 3		
4	1	
5	2	F2. If you needed a condom, where is the first place you would go to find one?
6	3	O Pharmacy or drugstore
7 8	4	O Supermarket
9	5	O Health clinic
10	6	• Community event
11 12	7	O Restroom vending machine
13	8	O Friend
14	9	O Partner
15	10	O Other
16 17	11	
18	12	F3. If I had sex and told my friends that I did not use a condom, they would be angry or
19	13	disappointed.
20 21	14	O Strongly agree
22	15	O Agree
23	16	O Neutral
24 25	17	O Disagree
25 26	18	O Strongly disagree
27	10	
28	20	E4 My friends talls a lot about "safar" say
29 30		F4. My friends talk a lot about "safer" sex.
31	21	O Strongly agree
32	22	O Agree
33 34	23	O Neutral
35	24	O Disagree
36	25	• Strongly disagree
37	26	
38 39	27	F5. My friends and I encourage each other before dates to practice "safer" sex.
40	28	• Strongly agree
41	29	O Agree
42 43	30	 Agree Neutral Disagree Strongly disagree
44	31	O Disagree
45	32	• Strongly disagree
46 47	33	
47	34	F6. If I thought that one of my friends had sex on a date, I would ask them if they used a
49	35	condom.
50	36	O Strongly agree
51 52	37	O Agree
53	38	O Neutral
54	39	O Disagree
55 56		5
50 57	40	• Strongly disagree
58	41	
59 60		
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2 3		
	1	F7. If a friend knew that I might have sex on a date, he/she would ask me if I was carrying a
4 5	2	condom.
6	3	• Strongly agree
7	4	O Agree
8 9	5	• Neutral
10	6	O Disagree
11	7	• Strongly disagree
12 13	8	• Strongry disagree
14	9	F8. When I think that one of my friends might have sex on a date, I would ask him/her if he/she
15		
16	10	was carrying a condom.
17 18	11	O Strongly agree
19	12	O Agree
20	13	O Neutral
21 22	14	O Disagree
22	15	• Strongly disagree
24	16	
25	17	F9. If I might have sex on a date and I do not have a condom, I would make an effort to go out of
26 27	18	my way and get one.
28	19	• Strongly agree
29	20	O Agree
30 31	21	• Neutral
32	22	O Disagree
33	23	O Strongly disagree
34	24	
35 36	25	F10. I would feel comfortable discussing condom use with a potential partner before we engaged
37	26	in sex.
38		
39 40	27	O Strongly agree
40 41	28	O Agree
42	29	O Neutral
43	30	O Disagree
44 45	31	• Strongly disagree
46	32	
47	33	F11. I would feel comfortable letting a primary partner know that I want to have sex with a
48	34	condom.
49 50	35	• Strongly agree
51	36	O Agree
52	37	• Neutral
53 54	38	O Disagree
54 55	39	• Strongly disagree
56	40	
57	70	
58 59		
60		

1 2		
3	1	F12. I would feel comfortable letting a casual partner know that I want to have sex with a
4 5	2	condom.
6	3	• Strongly agree
7	4	O Agree
8	5	O Neutral
9 10	6	O Disagree
11	0 7	• Disagree • Strongly disagree
12	7 8	• Strongry disagree
13 14	9	E12 I feel confident that I could refuse to have say with a partner who did not want you to use a
15	9 10	F13. I feel confident that I could refuse to have sex with a partner who did not want you to use a condom.
16 17	10	
17 18		O Strongly agree
19	12	O Agree
20	13	O Neutral
21 22	14	O Disagree
23	15	• Strongly disagree
24	16	
25 26	17	F14. I feel confident in my ability to incorporate putting a condom on myself or my partner into
27	18	foreplay.
28	19	• Strongly agree
29 30	20	O Agree
31	21	O Neutral
32	22	O Disagree
33 34	23	• Strongly disagree
35	24	
36	25	F15. I feel confident that I could use a condom with a partner without "breaking the mood."
37 38	26	• Strongly agree
39	27	O Agree
40	28	O Neutral
41 42	29	O Disagree
43	30	• Strongly disagree
44		
45 46	31	F16. In the last three months, did you ever try to convince a partner who did not want to use a
40 47	32	condom to use one before having sex?
48	33	• Yes, and I was successful
49	34	• Yes, but I was unsuccessful
50 51	35	O No
52	36	
53	37	F17. In the last three months, did your partner every try to convince you to use a condom when
54 55	38	you did not want to use one before having sex?
56		
57		
58 59		
60		

2		
3	1	• Yes, and he was successful
4 5	2	• Yes, but he was unsuccessful
6	3	O No
7	4	
8 9	-	
10	5	
11	6	G. HIV/STI Testing (Q97-132)
12 13	7	The next set of questions will ask about your HIV and STI testing and results. Self-testing refers
14	8	to you administering the test yourself and interpreting results.
15 16	9	
16 17	10	G1. Have you ever been tested for HIV?
18	11	O Yes
19 20	12	O No (Skip to G25)
20	12	
22	13 14	G2. Have you ever given or received an HIV self-test?
23 24	15	• Yes
24 25	15 16	O No
26	10	
27 28	17	G3. Have you ever self-tested for HIV?
29	10 19	• Yes
30	20	
31 32	20 21	• No (Skip to G20) (Do not show G35)
33	21	C4. Did someone also force you to take an HIV solf test?
34	22	G4. Did someone else force you to take an HIV self-test? • Yes
35 36		
37	24 25	O No
38	25	
39 40	26	G5. Who was with you when you self-tested? (Can select multiple)
41	27	O No one, I was alone
42	28	O Partner
43 44	29	• Friend
45	30	
46	31	G6. Was your HIV self-test the first time you ever tested for HIV?
47 48	32	O Yes
49	33	O No
50	34	
51 52	35	G7. What happened to your HIV testing frequency after you first used a self-test?
53	36	O Increased
54	37	O Decreased
55 56	38	O No change
50 57	39	
58		
59 60		
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1 2		
3	1	G8. Have you ever received a positive result with HIV self-testing?
4	2	
5 6		O Yes
7	3	• No (Skip to G11)
8	4	
9	5	
10 11	6	G9. Has using an HIV self-test caused you subsequent suicidal feelings?
12	7	O Yes
13	8	O No
14	9	
15 16	10	G10. Has using an HIV self-test led to a violent confrontation (physically hitting)?
17	11	O Yes
18	12	O No
19 20	13	
20 21	14	The next set of 4 questions will ask you to recall experiences specific to self-testing.
22	15	The next set of T questions will ask you to recail experiences specific to set testing.
23	16	G11. Has using an HIV self-test has increased your desire to seek follow-up care, as opposed to
24 25	10	
26		other forms of HIV testing?
27	18	O Yes
28 29	19	O No
29 30	20	
31	21	G12. Self-testing for HIV gives me a sense of empowerment by allowing me to choose when I
32	22	test.
33 34	23	• Strongly Agree
35	24	O Agree
36	25	• Neutral
37 38	26	O Disagree
30 39	27	• Strongly Disagree
40	28	
41	29	G13. Self-testing for HIV gives me a sense of empowerment by allowing me to choose where I
42 43	30	test.
44	31	• Strongly Agree
45	32	O Agree
46 47	33	O Neutral
48	34	O Disagree
49	35	• Disagree • Strongly Disagree
50		Shongry Disagree
51 52	36	
53	37	G14. Self-testing for HIV gives me a sense of empowerment by allowing me to choose with
54	38	whom I test.
55 56	39	O Strongly Agree
57 58 59	40	O Agree
60		

1		
2 3	1	O Neutral
4	1 2	O Disagree
5 6	2	-
7		• Strongly Disagree
8	4 5	C15. Did you confirm your positive HIV self test regult at the CDC or hegaital?
9 10		G15. Did you confirm your positive HIV self-test result at the CDC or hospital? • Yes
11	6 7	
12		O No
13 14	8	C16 Did you reasing reat calificat courseline?
15	9 10	G16. Did you receive post-self test counseling?
16	10	• Yes (show G17)
17 18	11	O No
19	12	
20	13	G17. What kind of post-test counseling did you receive?
21 22	14	O online
23	15	O telephone
24 25	16	• in-person
25 26	17	
27	18	G18. Where did you obtain your HIV self-test kit?
28	19	O online
29 30	20	O hospital
31	21	O pharmacy
32	22	O CBO
33 34	23	• friend
35	24	
36	25	G19. Was your HIV self-test oral or blood?
37 38	26	• Oral
39	27	O Blood
40	28	
41 42	29	G20. In the last two years, how frequently did you get tested for HIV?
43	30	• Less than once every two years
44 45	31	 Less than once every two years Once a year Once a year
45 46	32	• Once every six months
47	33	• Once every three months
48	34	• Monthly
49 50	35	
51	36	G21. What was the result of your most recent HIV test?
52 52	37	• HIV positive/infected (Display G23)
53 54	38	 O HIV negative/uninfected
55	39	• Invitegative/uninceted • I never got my test results (Skip to G25)
56		• There for my test results (bulp to 025)
57 58	40	
59		
60		

1 2		
3	1	G22. Did you notify your primary male sex partner about your most recent HIV test result?
4	2	O Yes
5 6	3	O No
7	4	• I do not have a regular partner (Do not display G25)
8	5	
9 10	6	G23. Have you ever taken anti-retroviral therapy (ART) for your HIV infection?
11		
12	7	• Yes – I have taken, and I am currently taking
13 14	8	• Yes – I have taken, but I am currently not taking (Display G24)
15	9	○ No – I have never taken
16 17	10	
17 18	11	G24. Why did you stop taking ART? (Select all that apply)
19	12	O It was too expensive
20 21	13	• I didn't like the side effects
22	14	• I didn't feel that it was working
23	15	• I thought it was cumbersome (too much time, forgot to take, etc.)
24 25	16	O Stigma
26	17	
27 28	18	G25. Has your primary male sex partner ever been tested for HIV? (Do not display if no to B8)
29	19	O Yes
30 31	20	• No (Skip to G27)
32	21	
33 34	22	G26. What was the result of your primary male sex partner's most recent HIV test?
35	23	• HIV positive/infected
36 37	24	O HIV negative/uninfected
38	25	• Never got test results
39	26	O I don't know
40 41	27	
42	28	G27. Have you ever had a male sex partner who tested HIV positive?
43 44	29	O Yes
45		
46 47	30 21	O No (Skip to G30) O L den't know (Skin to C20)
48	31	• I don't know (Skip to G30)
49	32	
50 51	33 24	G28. Did you ever have any anal sex without a condom with a HIV positive partner?
52	34 25	O Yes
53	35	O No
54 55	36	
56	37	G29. Approximately how many HIV positive male sex partners have you had?
57 58	38	sex partners (Number input)
58 59		
60		

1 2		
3	1	
4 5	2	G30. Have you ever been tested for syphilis?
6	3	O Yes
7	4	• No (Skip to G36)
8 9	5	
10	6	G31. Have you ever used a self-testing kit for syphilis?
11	7	O Yes
12 13	8	• No (Skip to G36)
14	9	
15	10	G32. Was your self-test the first time you ever tested for syphilis?
16 17	11	• Yes (Do not display G33)
18	12	O No
19 20	13	
20 21	14	G33. What happened to your syphilis testing frequency after you first used a self-test?
22	15	• Increased
23 24	16	O Decreased
2 4 25	17	O No change
26	18	
27 28	19	G34. Where did you obtain your syphilis self-test kit?
29	20	O online
30	21	• hospital
31 32	22	O pharmacy
33	23	O CBO
34	24	• Friend
35 36	25	
37	26	G35. Have you ever performed syphilis and HIV self-testing together?
38	27	O Yes
39 40	28	O No
41	29	
42 43	30	G36. In the last twelve months, which of the following services did you receive (Select all that
43 44	31	apply):
45	32	• Condom distribution
46 47	33	• Lubricant distribution
47 48	34	O Peer Education
49	35	• STD Diagnosis or Treatment
50 51	36	• HIV counseling or Testing
52	37	• AIDS/STD Materials (pamphlets, etc.)
53	38	
54 55	39	
56	40	I. Community Engagement (Q133-143)
57		
58 59		
60		

2		
3	1	The next set of questions will ask you about your experiences with activities in your community
4 5	2	promoting sexual health.
6	3	1 0
7 8	4	I1. In the last three weeks, have you viewed any videos promoting condom use among MSM?
9	5	O Yes
10	6	O No
11 12	7	
13	8	I2. In the last three weeks, have you viewed any videos promoting HIV testing among MSM?
14	9	O Yes
15 16	10	O No
17	11	
18	12	13. Are you aware of any ongoing community events promoting sexual health among MSM?
19 20	13	O Yes
21	14	O No
22	15	
23 24	16	I4. Have you ever helped organize a testing and/or awareness campaign (e.g. HIV, condom use,
25	17	etc.) that promoted sexual health among MSM?
26	18	O Yes
27 28	19	O No
20 29	20	
30	21	I5. Have you ever volunteered at a health clinic or other location that provided sexual health
31 32	22	services among MSM?
33	23	O Yes
34	24	O No
35 36	25	
30 37	26	I6. Have you ever encouraged someone else to get tested for HIV and/or another sexually
38	27	transmitted disease?
39 40	28	O Yes
40	29	O No
42	30	
43 44	31	I7. Have you ever accompanied a friend or partner to a testing facility to get tested for HIV
44 45	32	and/or another sexually transmitted disease?
46	33	• Yes
47	33 34	O No
48 49	34 35	
50		10 How important to you is community an excamant and norticipation in devaloring convol
51	36 37	I8. How important to you is community engagement and participation in developing sexual health campaigns (for your own community)?
52 53	38	• Very important
54	39	• Important
55 56	40	 O Neither important or not important
56 57	10	• Tenner important of not important
58		
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1	• Slightly important
2	• Not important
3	-
4	I9. Have you ever participated in online forums or discussions on social media (ie. Weixin,
5	Weibo, Twitter, or other on-line communities) about about sexual health, condom use, or
6	HIV/STD testing or related services?
7	O Yes
8	O No
9	
10	I10. Do you have a Weibo account?
11	• Yes (Display I11)
12	O No
13	
14	I11. How many Weibo followers do you have?
15	• Less than 100
16	❑ 101-500
17	O 501-1000
18	O 1001-1500
19	O 1501-2000
20	• More than 2001
21	
22	
23	Video 1: Crowdsourcing
24 25 26	We would now like you to watch a short-one minute video. Please make sure to view the entire video before closing the window. The video may take up to a minute to load, thank you for your patience.
27	
28	Video 2: Social Marketing
29 30 31 32	We would now like you to watch a short-one minute video. Please make sure to view the entire video before closing the window. The video may take up to a minute to load, thank you for your patience.
33	End of Survey
34 35 36 37	Please confirm your mobile phone number at this time to receive our reminder of the follow-up survey and reward. Please notice that only after you finish the 3 week follow up could you get the 100 top up reward.
38 39	• Mobile Phone #s: (<i>Text Entry</i>) (must be 11 digits)
40 41	Follow-up Contact (Q144-145)

1		
2 3	1	
4	1	
5	2	FUC1. Thank you for taking the time to complete our survey! Based on your responses to our
6 7	3	questionnaire, we request that you to complete a follow-up survey in three weeks' time. Upon
8	4	completion of this survey, you will receive an additional 50 RMB mobile phone recharge! When
9	5	the time comes, we would like to send you a reminder to complete the survey via QQ. Will you
10	6	agree to provide us your QQ number? If you agree, you will be contacted by the following user:
11 12	7	
13	8	Number: 2663701478
14	9	Name: 赛思研究团队
15 16		Tunic. Market Phenot
17	10	
18	11	• Agree (Display FUC2)
19 20	12	O Disagree
21	13	
22	14	FUC2. Please input your QQ number:
23	15	• QQ number:
24 25	16	
26	17	Referral (Q146)
27	18	
28 29	19	R1. If you think any of your male friends would be interested in participating in our research
30	20	survey, please share our study with them! Alternatively, you can provide us with either their
31	21	mobile phone or QQ number, and we will send them a link to our survey. (Please enter as many
32 33	22	unique numbers as you are willing in the spaces provided.)
33 34	23	
35	24	If you provide a QQ number for referral, please notify your friend(s) that they will be contacted
36 37	25	by赛思研究团队 (#: 2663701478).
38		
39 40	26 27	If you provide a mobile phone number for referral, please notify your friend(s) that they will be contacted by 18613067997.
41	27	
42		O Mobile Phone #s:
43 44	29	 O Mobile Phone #s: O QQ numbers:
45	30	
46	31	
47		
48 49		
50		
51		
52 53		
54		
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56		
57 58		
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60		



STANDARD PROTOCOL ITEMS: RECOMMENDATIONS FOR INTERVENTIONAL TRIALS

SPIRIT 2013 Checklist: Recommended items to address in a clinical trial protocol and related documents*

Section/item	ltem No	Description	Addressed on page number
Administrative int	formation		
Title	1	Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym	1
Trial registration	2a	Trial identifier and registry name. If not yet registered, name of intended registry	3
	2b	All items from the World Health Organization Trial Registration Data Set	1,14-15
Protocol version	3	Date and version identifier	1
Funding	4	Sources and types of financial, material, and other support	14
Roles and	5a	Names, affiliations, and roles of protocol contributors	<u>1,14</u>
responsibilities	5b	Name and contact information for the trial sponsor	14
	5c	Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	15
	5d	Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	<u> N/A </u>
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2					
3 4	Introduction				
5 6 7	Background and rationale	6a	Description of research question and justification for undertaking the trial, including summary of relevant	<u>4</u>	_
8 9		6b	Explanation for choice of comparators	4	
10 11	Objectives	7	Specific objectives or hypotheses	5	
12 13 14	Trial design	8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, noninferiority, exploratory)	6	
15 16	Methods: Participa	nts, inte	erventions, and outcomes		
17 18 19	Study setting	9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will _ be collected. Reference to where list of study sites can be obtained	6	_
20 21 22	Eligibility criteria	10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and	7	_
23 24 25 26	Interventions	11a	Interventions for each group with sufficient detail to allow replication, including how and when they will be administered	8	_
20 27 28 29		11b	Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose	<u>N/A</u>	
30 31 32		11c	Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return, laboratory tests)	8	_
33 34		11d	Relevant concomitant care and interventions that are permitted or prohibited during the trial	<u>N/A</u>	
35 36 37 38 39	Outcomes	12	Primary, secondary, and other outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, _ median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended	9	_
40 41 42 43	Participant timeline	13	Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for _ participants. A schematic diagram is highly recommended (see Figure)	12	
44					2
45 46			Protected by cqpgtghainghighighteries/ទុទ្ធត្រូទានសមាល់សមាល់អាវុសសមាល់អាវុសក្រុមក្រុមក្រុមក្រុមក្រុមក្រុមក្រុមក		
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			10
Sample size	14	Estimated number of participants needed to achieve study objectives and how it was determined, including _ clinical and statistical assumptions supporting any sample size calculations	10
Recruitment	15	Strategies for achieving adequate participant enrolment to reach target sample size	7
Methods: Assignm	ent of i	nterventions (for controlled trials)	
Allocation:			
Sequence generation	16a	Method of generating the allocation sequence (eg, computer-generated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions	11
Allocation concealment mechanism	16b	Mechanism of implementing the allocation sequence (eg, central telephone; sequentially numbered,	<u>11</u>
Implementation	16c	Who will generate the allocation sequence, who will enrol participants, and who will assign participants to	11
Blinding (masking)	17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome	<u>N/A</u>
	17b	If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant's _ allocated intervention during the trial	N/A
Methods: Data colle	ection,	management, and analysis	
Data collection methods	18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related _ processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	<u>10</u>
	18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be	9
		For peer region only of the //braignen hmi com/cite/about/suidelings.shtml.	
	'9	Enseignement Superieur (ABES) . Protected by comyrightanighenging/คราย)อเอง protextate คายอายายการการการการการการการการการการการการการก	

Page	57	of	57
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1 2					
2 3 4 5 6	Data management	19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality _ (eg, double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol	<u>14</u>	_
7 8 9	Statistical methods	20a	Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the _ statistical analysis plan can be found, if not in the protocol	11	_
10 11		20b	Methods for any additional analyses (eg, subgroup and adjusted analyses)	12	
12 13 14		20c	Definition of analysis population relating to protocol non-adherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)	12	
15 16	Methods: Monitorir	ng			
17 18 19 20 21 22	Data monitoring	21a	Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of _ whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed	9	_
23 24 25		21b	Description of any interim analyses and stopping guidelines, including who will have access to these interim _ results and make the final decision to terminate the trial	N/A	_
26 27 28	Harms	22	Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct	N/A	_
29 30 31	Auditing	23	Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	<u>N/A</u>	—
32 33 34	Ethics and dissemi	nation			
35 36 37	Research ethics approval	24	Plans for seeking research ethics committee/institutional review board (REC/IRB) approval	<u>12</u>	
38 39 40 41 42	Protocol amendments	25	Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC/IRBs, trial participants, trial registries, journals, regulators)	12	_
43 44					4
45 46		••	Protected by comparing/graphing/fackgeste)อยองช่วยเป็นอย่านอายุปลากไปเหล่านอายุกลายการเหล่านอายุกลาย Protechnologies		
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Consent or assent	26a	Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and _ how (see Item 32)	13
	26b	Additional consent provisions for collection and use of participant data and biological specimens in ancillary _ studies, if applicable	<u>N/A</u>
Confidentiality	27	How personal information about potential and enrolled participants will be collected, shared, and maintained _ in order to protect confidentiality before, during, and after the trial	13
Declaration of interests	28	Financial and other competing interests for principal investigators for the overall trial and each study site	16
Access to data	29	Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that _ limit such access for investigators	14
Ancillary and post- trial care	30	Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial _ participation	<u>N/A</u>
Dissemination policy	31a	Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions	14
	31b	Authorship eligibility guidelines and any intended use of professional writers	<u>N/A</u>
	31c	Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code	<u>N/A</u>
Appendices			
Informed consent materials	32	Model consent form and other related documentation given to participants and authorised surrogates	25
Biological specimens	33	Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	23
*It is strongly recommended that this checklist be read in conjunction with the SPIRIT 2013 Explanation & Elaboration for important clarification on the items. Amendments to the protocol should be tracked and dated. The SPIRIT checklist is copyrighted by the SPIRIT Group under the Creative Commons " <u>Attribution-NonCommercial-NoDerivs 3.0 Unported</u> " license.			
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BMJ Open

Comparing the effectiveness of a crowdsourced video and a social marketing video in promoting condom use among Chinese men who have sex with men: A study protocol

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Manuscript ID	bmjopen-2015-010755.R1
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Complete List of Authors:	Liu, Chuncheng; UNC Project China Mao, Jessica; UNC Project China Wong, Terrence; UNC Project China Tang, Weiming ; UNC Project China Tang, Songyuan; UNC Project China Zhang, Ye; UNC Project China; Guangdong Provincial Center for Skin Diseases and Sexually Transmitted Infections Control Zhang, Wei; UNC Project China Qin, Yilu; UNC Project China Chen, Zihuang; Danlan Ma, Wei; Shandong University School of Public Health Kang, Dianming; Shandong Center for Disease Prevention and Control Li, Haochu; UNC Project China; Shandong University School of Public Health Liao, Meizhen; Shandong Center for Disease Prevention and Control Mollan, Katie; University of North Carolina at Chapel Hill Hudgens, Michael; University of North Carolina at Chapel Hill Bayus, Barry; University of North Carolina at Chapel Hill Huang, Shujie; Guangdong Provincial Center for Skin Diseases and Sexually Transmitted Infections Control Yang, Bin; Guangdong Provincial Center for Skin Diseases and Sexually Transmitted Infections Control Wei, Chongyi; University of California - San Francisco, Department of Epidemiology and Biostatistics & Global Health Sciences Tucker, Joseph; UNC Project China
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59 60	$ \begin{array}{r} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 22 \\ 23 \\ 24 \\ 25 \\ 26 \\ 27 \\ 28 \\ 29 \\ 30 \\ 31 \\ 32 \\ 33 \\ 34 \\ 35 \\ 36 \\ 37 \\ 38 \\ 39 \\ 40 \\ 41 \\ 42 \\ 43 \\ 44 \\ 45 \\ 46 \\ 47 \\ 48 \\ 49 \\ 50 \\ 51 \\ 52 \\ 53 \\ 54 \\ 55 \\ 56 \\ 57 \\ 58 \\ 7 7 58 \\ 7 7 58 \\ 7 58 \\ 7 7 58 \\ 7 7 7 7 8 7 7 7 7 7 $	
	58 59	

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1	Comparing the effectiveness of a crowdsourced video and a social marketing video in
2	promoting condom use among Chinese men who have sex with men: A study protocol
3	
4	Chuncheng Liu ¹ *, Jessica Mao ¹ *, Terrence Wong ¹ *, Weiming Tang ¹ , Lai Sze Tso ¹ , Songyuan
5	Tang ¹ , Ye Zhang ^{1,6} , Wei Zhang ¹ , Yilu Qin ¹ , Zihuang Chen ² , Wei Ma ³ , Dianming Kang ⁴ , Haochu
6	Li ^{1,3} , Meizhen Liao ⁴ , Katie Mollan ⁵ , Michael Hudgens ⁵ , Barry Bayus ⁵ , Shujie Huang ⁶ , Bin
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15	⁷ University of California, San Francisco
16	
17	Chuncheng Liu, Jessica Mao and Terrence Wong contributed equally to this work and are co-
18	first authors.
19	
20	#Corresponding Author: jdtucker@med.unc.edu
21	
22	Version 1.0
23	

Introduction Crowdsourcing has been used to spur innovation and increase community engagement in public health programs. Crowdsourcing is the process of giving individual tasks to a large group, often involving open contests and enabled through multi-sectoral partnerships. Here we describe a crowdsourced video intervention in which a video promoting condom use is produced through an open contest. The aim of this study is to determine whether a crowdsourced intervention is as effective as a social marketing intervention in promoting condom use among high-risk men who have sex with men (MSM) and transgender male-to-female (TG) in China. Method We held an open contest to develop a crowdsourced video and obtained a social marketing video from an advertising company. The crowdsourcing contest involved an open call for videos. Entries were judged on capacity to promote condom use, to be shareable or "go viral", and to give value to the individual. 1170 participants will be recruited for the randomized controlled trial. Participants need to be MSM age 16 and over who have had condomless anal sex in the last 3 months. Recruitment will be through an online banner ad on a popular MSM webpage and other social media platforms. After completing an initial survey, participants will be randomly assigned to view either the social marketing video or the crowdsourcing video. Follow-up surveys will be completed at both 3 weeks and 3 months after initial intervention to evaluate condomless sex and related secondary outcomes. Secondary outcomes include condom social

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4			
1	norms, condom negotiation, condom self-efficacy, HIV/syphilis testing, frequency of sex acts		
2	and incremental cost.		
3	Ethics and dissemination:		
4	Approval was obtained from the ethical review boards of the Guangdong Provincial Center for		
5	Skin Diseases and STI control, the University of North Carolina at Chapel Hill, and the		
6	University of California at San Francisco. The results of this trial will be made available through		
7	publication in peer-reviewed journals.		
8			
9	Trial registration number: This trial was registered in ClinicalTrials.gov (NCT02516930).		
10			
11			
12			
13	Strengths and Limitations of this study protocol:		
14	• This will be one of the few randomized controlled trials evaluating crowdsourcing		
15	• The use of a large MSM platform will allow us to reach a large number of MSM who do		
16	not disclose their sexual orientation to doctors or others		
17	• No biomarker data will be collected and there are inherent limitations associated with		
18	behavioural outcomes		
19			

INTRO	DUCTION
-------	---------

2 Male Sexual Health

Male condoms have long been recognized as an effective method for reducing the risk of HIV and other sexually transmitted diseases (STDs)[1, 2], but men who have sex with men (MSM) infrequently use condoms in China[3-6]. The resulting high incidence of HIV and STDs among MSM suggests the need for novel health promotion campaigns. One systematic review[7] and one literature review among MSM[8] demonstrate that social marketing campaigns are effective in promoting condom use, but the persistence of these behavioural changes over time is unclear. We propose that crowdsourcing may substantially improve on existing methods for developing condom promotion campaigns.

12 Crowdsourcing

Crowdsourcing is the process of giving individual tasks to a large group, often involving open contests and enabled through multisectoral partnerships. While the process originated in the private sector[9], intended to aid research, development and dissemination, it has since been widely adopted. In 2010, the Executive Office of the President of the United States urged federal agencies to utilize crowdsourcing as a method to develop innovative approaches to governmental initiatives[10]. A crowdsourcing method differs from a social marketing method in several ways[11]. Crowdsourcing is a bottom-up approach, utilizing the community for idea generation through implementation rather than relying on the expertise of public health experts. This ensures a higher degree of community engagement than approaches utilizing social marketing do, which tends to be a top-down approach. Crowdsourcing promotes innovation because it removes cognitive fixation, in which innovation is hampered due to new ideas being strongly

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influenced by prior examples [12-16]. By engaging more people with less experience, this phenomenon is avoidable and allows for a more creative process^[17]. Our team has previously used crowdsourcing successfully to develop an effective HIV testing promotion video and images promoting sexual health.[18] **OBJECTIVES** Aims and Hypotheses Specific Aim 1: To compare the effect of a crowdsourced one-minute video to a social marketing one-minute video in promoting condom use among MSM and transgender male-to-female (TG) in China. This will be evaluated using data from follow-up surveys at 3 weeks and 3 months post-video. Hypothesis 1: Crowdsourced videos are not inferior to social marketing videos to promote condom use among MSM and TG in China. Specific Aim 2: To compare the cost of using crowdsourcing compared to social marketing methods for developing short videos focused on promoting condom use among MSM and TG individuals in China. Hypothesis 2: A crowdsourced video is cost saving compared to a social marketing video for promoting condom use. Specific Aim 3: To compare the effect of a crowdsourced one-minute video to a social marketing one-minute video in changing condom use self-efficacy and self-reported behaviour among MSM and TG individuals in China.

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Hypothesis 3: Crowdsourced videos are not inferior to social marketing videos in changing
condom use self-efficacy and self-reported behaviour among MSM and TG in China.
METHODS
Trial design
This study will be a pragmatic, non-inferiority, randomized controlled trial comparing two
groups – MSM who watch a crowdsourced video and MSM who watch a social marketing video.
Allocation to each arm will be done with a 1:1 ratio using a computer-based algorithm. The
study is projected to run from November 2015 to February 2016.
Setting
This study survey will be made available to MSM across China through a popular online portal,
Danlan and gay mobile dating app, Blued. Danlan.com is an online gay community that allows
MSM to connect with each other for relationships, events, and communication. The website is
maintained by a private corporation, Danlan, which also developed the for-profit app Blued.
Blued has become very popular among the MSM population, recently reaching 15 million
users[19]. User personal information is protected and secure. Studies have shown that the
Internet has become a popular method for MSM to find partners, with a reported 28.3-88.4% of
MSM using the Internet to seek sexual partners [20]. While Internet-based interventions have yet
to be widely dispersed in mainland China, early studies show that such e-technology-based
approaches would be well received[21].

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1 Recruitment

Participants will be recruited using a banner link on a popular MSM app "Blued" (Danlan,
Beijing, China), as well as through announcements sent via Danlan's social media (Weibo, a
microblogging platform, WeChat, a messaging platform, and QQ, a messaging platform). Blued
is China's most popular social networking mobile application among MSM. Blued has 15
million followers with 24% (3.6 million people) daily activity rate[19]. Danlan has over 17,000
followers on social media platform Weibo and forwards news via WeChat and QQ to over

8 429,000 followers[22].

Eligibility

The survey is voluntary, and to be eligible, participants must state that they were born biologically male, had anal sex with men at least once during their lifetime, have had condomless anal/vaginal sex in the past three months, are at least 16 years of age, and able to complete an online written survey in Chinese. All participants must agree to an online informed consent and provide their cell mobile number. Participants who do not meet these criteria will not be allowed to proceed with the survey.

Formative work

Prior to survey development, we will interview key informants specifically about conducting an
Internet survey among MSM in China. Survey development will be done drawing on previous
surveys and a review of existing literature, focusing on English and Chinese language studies.
The survey will be developed in both English and Chinese but conducted entirely in Chinese.
The Chinese version of the survey will be piloted online with 150 volunteers to gauge post-

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intervention condom usage rates and to estimate the necessary sample size for the non-inferiority study. The survey will also be piloted with Danlan to ensure there are no problems with distribution. Feedback will be solicited online regarding question wording and interpretation. Pilot data will not be included in the final analysis. The purpose of this extensive formative research is to ensure that the online survey is simple and easy to complete. The CONSORT-Ehealth checklist for online surveys [23] will be used to ensure completeness. The online survey will be created using Qualtrics Survey Software (Qualtrics, Provo, Utah) and the videos will be hosted on Tencent Video (Tencent, Shenzhen, China).

10 Interventions

The development of the crowdsourcing video was publicized via open contest. We posted a public call on social media platforms (Weibo, WeChat) for videos promoting condom use awareness. For further promotion, we hosted in-person events at several different college campuses in Guangzhou, China and worked with local community-based organizations to publicize the contest. In-person events included didactic sessions, interactive feedback sessions, and community-driven events. Ten judges, including community health leaders, doctors, business leaders, and researchers, evaluated the videos. Each judge scored the video entries on a scale of 1-10 (10 the highest score) and a single winner was identified. The winning video will be included in the survey as the intervention arm of the RCT. The one-minute video depicts a group of men dressed as cartoon villains attempting and failing to break down a wall, followed by an image of condoms. Our team will delay announcement of the contest winner to allow time for adequate intervention implementation and comparison. The winning video will be announced 2 weeks after the intervention is evaluated using the 3-month follow-up survey.

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The social marketing video was commissioned from a working group in Jinan. This one-minute
video contains audio of two men about to engage in intercourse, but stopping to discuss condom
use and sexual health as a symbol of love. Script of the video was written by experts in San
Francisco and modified by experts and the gay community in Jinan and Qingdao. The video was
shot by an advertising company based in Jinan.

7 Data collection

A survey will be developed using the Qualtrics survey tool. Participants will answer 150 questions on socio-demographic information, sexual behaviour, social norms, condom self-efficacy, HIV testing, and community engagement. At the end of the survey, participants will be randomly assigned to one of two intervention arms, the crowdsourcing video or social marketing video, and will view the appropriate video. Participants will not be informed of the video options upon randomization, and will not see the alternate intervention video. Participants will provide mobile telephone numbers, and will receive text message reminders three weeks after initial survey completion to complete the three-week follow-up survey. After completion of the three-week survey, participants will be compensated for the first portion of the study (about \$15.87 USD). Three months after completion of the initial survey, participants will again receive a mobile telephone reminder to complete the three-month survey. After completion participants will receive the second portion of their compensation (about \$7.93 USD).

Participants will register for our survey using a mobile number. Following completion of data
collection, data entries will be screened for duplicate mobile numbers, and the second entry will
be excluded. Entries with invalid mobile numbers will also be excluded.

1	
2	A data monitoring committee will not be required as this study employs low risk behavioural
3	interventions. All participants will provide consent prior to taking part in the study.
4	
5	Measures
6	Data from survey items on socio-demographics and sexual behaviours will be collected using
7	standardized survey instruments immediately before video watching, at three weeks after video
8	watching, and at three months after video watching. Socio-demographic characteristics include
9	participants' age, place of residence, highest level of education completed, annual income,
10	marital status, sexual orientation, and sexual orientation disclosure. Behavioural variables
11	include number of sex acts in the past three weeks, condomless sex with men, condomless sex
12	with women, condom self-efficacy, and other secondary outcomes (See Supplemental File 1).
13	
14	OUTCOMES
15	Primary Outcomes
16	The primary outcome will be any condomless vaginal or anal sex (with any sex partner) among
17	MSM and TG individuals following the video intervention. A participant is counted as having
18	had condomless sex if they participated in any act of sexual intercourse (vaginal or anal) that has
19	taken place without use of a condom. Using a post-intervention survey, participants will be asked
20	with what frequency they have used condoms since watching the video: all, most, some or none
21	of the time (See Supplemental File 2). The three-week follow-up survey will ask about the three
22	weeks following the intervention, and the three-month follow-up will cover the three months

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> following the intervention. Individuals who have not had sex in the interval will be classified as having no condomless sex. Secondary Outcomes Post-intervention sex acts Condom use social norms Condom self-efficacy Condom use negotiation HIV testing and self testing Syphilis testing and self testing Incremental cost of intervention associated with respective video interventions per individual reporting increased condom use or no sex since intervention. Other cost-

- related data from organizations involved in making the intervention videos will be
- collected. Detailed information on incremental costs can be found in Table 1.
- More detailed explanations of secondary outcomes can be found in Supplemental File 1.

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running.

Ы	Financial costs	Economic costs
Phase		
Contest development	Inputs to be capture, can all directly be found in the project financial accounts, main challenge is to allocate across components and to allocate SESH overhead costs	<i>Extra inputs not already captured by financial costs</i>
Video contest (including production)	Money paid for planning and implementation	 For social marketing arm: Personnel of CBOs/CDC (director of movie, actors, film editors) Rental of professional video equipment (if applicable) Building cost (office renting) for CBOs/CDC* Equipment and software cost (if applicable) * For crowdsourced arm: Personnel of SESH (although al volunteer) Judging opportunity cost (volunteer) Steering Committee planning meeting (three one-hour meetings) Building cost (office renting)* In-person promotion costs
Survey start up	Money paid to launch the survey (start-up)	 SESH personnel costs, to design and maintain the program Equipment cost of SESH (computer and other items)*
Survey implementation and intervention	Money paid to the participants (implementation) Money paid for the software used for follow up (implementation)	 Software (Qualtrics)* SESH personnel costs

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Sample size calculation

Sample size for this non-inferiority trial was determined assuming an equal probability of reporting condomless sex in the crowdsourced video and social marketing video arms. Assuming a 50% probability of condomless sex in each arm, a one-sided significance level (α) of 2.5%, a non-inferiority limit of 10%, and loss to follow-up of 10%, a total sample size of 1170 individuals was required (585 in each arm) to have 90% power (1- β). The sample size was calculated using the formula [24]:

$$n = f(\alpha, \beta) \frac{[\pi_s (1 - \pi_s) + \pi_e (1 - \pi_e)]}{(\pi_s - \pi_e - d)^2}$$

10 where π_s and π_e are the true probabilities of reporting condomless sex in the social marketing 11 video (standard) and crowdsourced video (experimental) intervention groups, respectively, d is 12 the non-inferiority limit, and $f(\alpha,\beta) = [\Phi^{-1} (1-\alpha) + \Phi^{-1} (1-\beta)]^2$ where Φ denotes the cumulative 13 distribution function of the standard normal distribution. More information on sample size 14 calculation can be found in Table 2.

 Table 2: Sample size for 90% power and one-sided 0.025 significance level

Probability of primary outcome in control group [*]	Probability of primary outcome in experimental group [*]	N evaluable per arm	Total sample size for RCT
0.50	0.50	526	1170
0.45	0.45	521	1158
0.40	0.40	505	1124
0.35	0.35	479	1066
0.30	0.30	442	984

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^{*}Based on the pilot study, 9 of 25 participants (95% confidence interval: 18% to 57%) had condomless sex at least once in the three-week period immediately following the video intervention. According to a similar RCT we conducted in 2014, the loss to follow up rate was about 10%; adjustment for loss to follow up required (N evaluable per arm)/(1-0.1) to be enrolled. A non-inferiority limit of 0.1 was used for all calculations. Randomization and allocation Participants will be randomly assigned to one of the two intervention videos using an electronic randomizer tool available through Qualtrics. Randomization will occur independently of any other data collected, with participants allocated in a 1:1 ratio to one of the two arms. Participants will not be informed of which video (crowdsourcing or social marketing) they are assigned to. **DATA ANALYSIS** Primary analysis The primary analysis will evaluate the non-inferiority hypothesis comparing the two interventions, as well as the superiority hypothesis. The difference in proportions having condomless sex (crowdsourced - social marketing) will be computed, with a corresponding two-sided 95% Wald confidence interval. The crowdsourced intervention will be declared non-inferior to social marketing if the upper confidence limit is below 10%. If the upper confidence limit is below 0%, then the crowdsourced intervention will be declared superior to social marketing. The recruitment methods, survey instrument, and video length will be the same between in the two study arms. Effect modification analysis

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Effect modification analyses will be under taken based on prior exposure to the condom promotion video viewed by the participant to assess whether this exposure modified the effect of video intervention arm upon the primary condom use outcome. A linear probability model will be used to evaluate effect modification by testing for an interaction between intervention and prior video watching.

Missing data plan

8 If the primary outcome is missing for <11% of participants, then the primary analysis will use a
9 complete-case approach. If the primary outcome is missing for 11 to <20% of participants, then
10 a sensitivity analysis using multiple imputation based on the PROC MI procedure in SAS (Cary,
11 NC) will also be used. If the primary outcome is missing for ≥20% of participants, then multiple
12 imputation will be used in the primary analysis.

14 Secondary analysis

15 Comparison will be made between the two trial arms with respect to each of the secondary 16 outcomes enumerated above and in Supplemental File 1. Non-inferiority comparisons will also 17 be made between study arms for the subset of individuals who reported sex during the follow-up 18 period (3 weeks and 3 months respectively) and causal inference methods will be employed to 19 account for post-randomization selection bias.

- 21 ETHICS AND DISSEMINATION
- 22 Ethical review

IRB approval was obtained from the Guangdong Provincial Center for Skin Diseases and STI Control, University of North Carolina at Chapel Hill, and University of California San Francisco. Informed Consent All participants will be provided an online consent form immediately prior to survey commencement. This online informed consent describes personal data to be collected, explaining that data will be used for research purposes. Contact information is provided to participants to address further questions. Participants will be required to sign the consent and provide a mobile telephone number as agreement to proceed with the survey. *Confidentiality* Data will be collected through the Qualtrics survey tool (Provo, Utah). Data will be transmitted securely using SSL (TLS) 128 bit encryption across the Internet (HTTP) and located in a secured Qualtrics server in the United States. The server is configured with redundant hard drive array to ensure reliability. Access to the data will be password protected within the server's firewall. Survey responses will be kept separately from participants' email addresses; the two files will be linked with a non-descript, unique, randomly generated identifier. Participants will provide mobile telephone numbers, which will be kept separately from data containing answers to survey items. These telephone numbers will be accessible only to two researchers solely for the means of sending reminders, follow-up surveys and mobile top-up incentives.

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1 Dissemination

The results of this study will be prepared and submitted for publication in a peer-reviewed

3 journal. Study findings will also be shared through conference abstracts and presentations,

4 workshops, and to our partnering organizations.

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1 Guangzhou, China. The funding source had no role in the design of the study and will not have

2 any role during its execution, analyses, interpretation of data, or decision to submit results.

Competing Interests

None of the authors declare any conflicts of interest.

Ethics Approval

9 Ethical approval has been obtained from the ethical review boards of the Guangdong Provincial

10 Center for Skin Diseases and STI control, the University of North Carolina at Chapel Hill, and

11 the University of California at San Francisco.

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Secondary Outcome	Definition
Incremental cost	Incremental cost, defined as the cost associated with respective video interventions (development, start-up, implementation, condom use, intervention – see Table 2 for details) per individual who
Female condomless	reported no sex or sex with a condom during the follow-up period.
sex	Frequency of men, defined as number of men who reported condomless vaginal or anal sex with a woman divided by the total number of men who viewed the video in that arm.
Male condomless sex	Frequency of men, defined as number of men who reported condomless anal sex with a man divided by the total number of men who viewed the video in that arm
Post-video condomless sex	Frequency of men, defined as number of men who reported condomless vaginal or anal sex with any partner immediately following the video intervention divided by the total number of men who viewed the video in that arm
Frequency of sex acts	Frequency of men, defined as the number of men who had decreased total number of sex acts in the three weeks following the intervention compared to the three weeks immediately preceding the intervention in that arm
Condom use social norms	Frequency of men, defined as number of men who report higher levels of social norms when comparing their pre-intervention and post-intervention condom use norms*
Condom self-efficacy	Frequency of men, defined as number of men who had an increase in self-efficacy when comparing their pre-intervention and post- intervention self-efficacy**
Condom negotiation	Frequency of men, defined as the number of men who attempted to convince an unwilling partner to use a condom immediately following the video intervention divided by the total number of men who viewed the video in that arm
HIV testing	Frequency of men, defined as the number of men who reported being tested for HIV during the interval between watching the video and following up compared to the number of men who followed up
STI testing	Frequency of men, defined as the number of men who reported being tested for STIs (excluding HIV) during the interval between watching the video and following up compared to the number of men who followed up
Likert scale. Increased of baseline in any two of the	ms will be measured using six survey items that are each on a five po condom use social norms will be defined as having an increase from lese six survey items and dichotomized accordingly. The condom use Il be assessed in the entire group as well as the subgroup of men who

6 were referred by their friends.
7 **Self-efficacy will be measured

**Self-efficacy will be measured using seven survey items that are each on a five point Likert scale. Increased self-efficacy will be defined as having an increase from baseline in any two of

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BMJ Open

these seven survey items and dichotomized accordingly. The self-efficacy outcome will be assessed in the entire group as well as the subgroup of men who were referred by their friends.

assessed in the entire group as well as the subgroup of men who were referred by their friends.

BMJ Open

1		
2 3	1	Supplementary Files Online Survey
4	1 2	Supplementary File: Online Survey
5 6	3	Men's Heath Study (Final)
7	4	
8	5	
9	6	About this Study:
10 11	7	You are being asked to take part in a research study that will help us better understand sexual
12	8	behavior and condom use among men in China. Your participation in this project will allow us to
13		
14 15	9	develop better interventions to promote condom use and to improve sexual health among men
16	10	across China.
17 18	11	
19	12	What's Involved?
20 21	13	
22	14	If you participate in this study, you will be asked to complete an online questionnaire and a
23	15	subset of participants will be asked watch a one minute video. A subset of participants will also
24	16	be asked to complete up to two additional follow-up questionnaires. The questionnaires will ask
25 26	17	you to provide sociodemographic information and information about your sexual behaviors. In
27	18	order to ensure that your privacy is protected, all of your online responses will be encrypted and
28 29	19	securely transferred to our data servers.
30	20	Upon completion of this study and a 3-week follow up survey, you will receive 100 RMB credit
31 32	21	to your mobile phone. Eligible participants who also complete the follow-up questionnaires can
33 34	22	receive up to 150 RMB credit to their mobile phone.
34 35	23	If you have any questions about the research or your participation in the study, feel free to
36	24	contact
37 38	25	
39 40		
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BMJ Open: first published as 10.1136/bmjopen-2015-010755 on 3 October 2016. Downloaded from http://bmjopen.bmj.com/ on June 14, 2025 at Agence Bibliographique de I Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, Al training, and similar technologies.

2 3 4 5	1 2	A. Basic Information (Eligibility Survey) (Q1-5)
6 7	3	A1. Were you born biologically male or female?
8 9 10	4 5	 O Male O Female (Not eligible to take this survey – Skip to End of Survey)
11 12 13	6 7	A2. What is your date of birth?
14 15 16 17	8 9 10	• <u>dd.mm.yyy</u> (<i>Calendar input</i>) (Not eligible to take this survey if year is greater than Launch day + 1999 or < 16 y/o – Skip to End of Survey)
18 19	11	A3. In your lifetime have you ever had anal sex with another man?
20 21 22 23	12 13 14	 Yes No (Not eligible to take this survey – Skip to End of Survey)
24 25 26	15 16	A4. In the last three months, did you have any anal and /or vaginal sex without a condom with any sex partner?
27 28 29 30	17 18 19	 Yes No (Not eligible to take this survey – Skip to End of Survey)
31 32 33 34	20 21 22	A5. Will you agree to provide us your Chinese mobile phone number? (Answering this question is required to participate in the survey and to receive your reward for participating. We will not distribute your number to any agency or individual. Thank you for your cooperation.)
35 36	23	• Agree
37 38 39	24 25	 Decline (Not eligible to take this survey – Skip to End of Survey)
40	26	Which carrier are you using right now?
41 42	27 28	O China MobileO China Unicom
43 44	28 29	• China Unicom • China Telecom
44 45 46 47 48 49 50 51 52 53 54 55 57 58 59 60	29 30 31	 China Unicom China Telecom

1		
2 3	1	Online Consent Form
4	T	<u>Onnie Consent i orm</u>
5 6 7	2	Title of Study: Men's Health Study
8	3	IRB study number: <u>15-1522</u>
9	4	Principal Investigator: <u>Dr. Joseph Tucker</u>
10	5	Dr. Joseph D. Tucker, UNC Project-China, Number 2 Lujing Road, Guangzhou, China,
11 12	6	
13	7	
14	8	What are some general things you should know about research studies? You are being asked
15	9	to participate in a research study. To join this research study is voluntary. You may for whatever
16	10	reason refuse to join or withdraw your consent to be in the study at any time, without penalty.
17	10	Details about this study are discussed below. It is important that you understand this information
18		
19	12	so that you can make an informed choice about joining this research study.
20 21	13	
22	14	What is the purpose of this study? Innovative approaches to condom promotion campaigns are
23	15	urgently needed. The current strategy to developing many of these campaigns is to repackage old
24	16	ideas rather than create new ones. The purpose of this research study is to understand how
25	17	crowdsourcing can be used to leverage both the high Internet use and willingness to participate
26	18	in online forums of young MSM (men who have sex with men) to transform the design and
27	19	implementation of condom promotion campaigns. Crowdsourcing is the process of taking a task
28	20	traditionally performed by a single individual or organization, and instead outsourcing the task to
29 30	21	a large group to complete in the form of a contest or open call, often enabled by the Internet.
31	22	
32	23	How many people will take part in this study? If you decide to participate in this research
33	24	study, you will be one of approximately 1170 individuals recruited across China.
34	25	
35	26	What will happen if you take part in the study? Your part in this research study will last
36	27	approximately 20 minutes. During this study, you will be asked to first complete an online
37 38	28	questionnaire, and depending on your responses, you may be asked to watch a one minute video
39	29	afterwards. Upon completion of this initial questionnaire, you will be asked to input your mobile
40	30	phone number as a means for the research team to prevent duplicate responses, to send
41	31	reminders, and to distribute rewards for participation. Additionally, some participant will be
42	32	asked to complete up to two additional follow-up questionnaires after three-week and twelve-
43	33	week's times. If you do not respond to the initial follow-up request, you will receive a message
44	34	reminder. To do this, we will also ask you to provide your QQ number. The study questionnaires
45 46	34	will ask you to provide sociodemographic information as well as details about your sexual health
40 47		
48	36	and sexual activity.
49	37	
50	38	What are the possible benefits from being in this study? Research is designed to benefit
51	39	society by gaining new knowledge. The proposed study will make important contributions to the
52	40	sexual health literature. The field of condom interventions among young MSM in resource-
53 54	41	limited settings is in its infancy. The results from this study will help the research team develop a
54 55	42	MSM targeted, community-level intervention that will be fielded and evaluated in the Chinese
56	43	setting. Your participation will also help design better interventions to promote condom use
57	44	among MSM in China.
58		
59		
60		

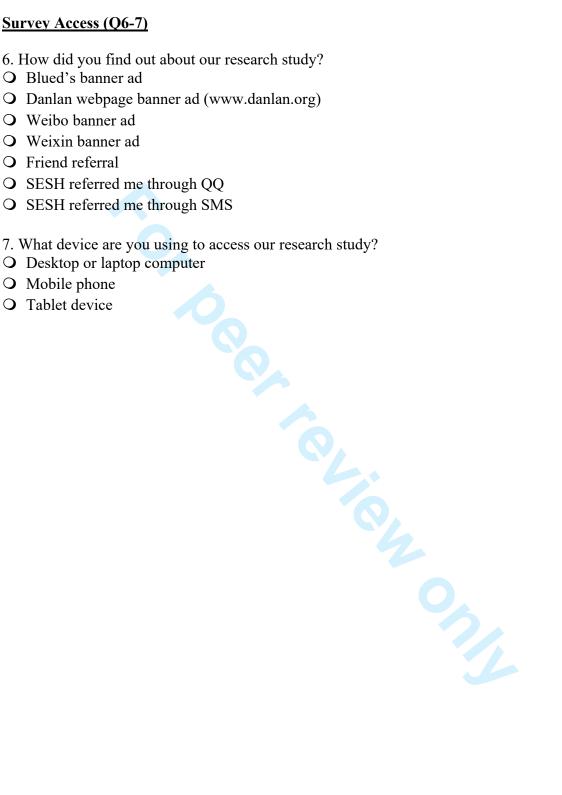
What are the possible risks or discomforts involved from being in this study? We will ask participants to provide sensitive information about their sexual partners and practices. Participants may feel embarrassed, anxious, or otherwise distressed by providing information of such a personal nature. Participants may also experience fatigue in response to the proposed evaluations (e.g. from looking at a computer screen). Some participants might fear that refusal to participate in the study might jeopardize their sexual orientation identity – especially if the participant has not come "out" to him or herself and/or the community). Other participants may fear that the research staff might "out" them or discuss their private details with other (MSM and non-MSM) members in their community. While the risk is minimal, there is still the possibility for breaches of confidentiality. How will your privacy be protected? All data are directly entered into computers as participants complete the questionnaires. Programs to ensure accuracy, completeness, and internal consistency are automated. Data can be readily downloaded and converted to the format of commercially available statistical software. During collection of the online portion of the study, all data will be transmitted securely using SSL (TLS) 128 bit encryption across the Internet (HTTP). SSL providers users with the assurance of access to a valid, "non-spoofed" site, and prevents data interception or tampering with sensitive information. The SSL certificate that will be used for this project will use 128-bit encryption, the preferred security level of government and financial institutions. 128-bit encryption offers protection that is virtually unbreakable. For example, if a hacker could crack a standard 40-bit SSL session in a day, it is estimated that it would take well beyond a trillion years to accomplish the same thing against a 128-bit SSL session. A dedicated server, which eliminates security issues involved with shared hosting environments where hundreds of websites and users reside on one shared web server as well as ensuring both physical and network security, will be used to house the data. Data will be located in a secured server at UNC Chapel Hill. The server will be configured with redundant hard drive array to ensure reliability. Access to the data will be password protected within the server's firewall. Survey responses will be kept separately from participants' email addresses; the two files will be linked with a non-descript, unique, randomly generally identifier. Only the PI and a designated senior staff member will have the password to access to the "key" that links the nondescript identifier to personally identifiable information. Cookies will not be used in any way to track participant activity. What if you want to stop before your part in the study is complete? If at any point in the study you do not want to answer a question or no longer want to participate, you can stop and withdraw from this study without penalty. The investigators also have the right to stop your participation if you have an unexpected reaction, have failed to follow instructions, etc. Will you receive anything for being in this study? Will it cost anything? Participants who are asked to watch a one-minute video will have the opportunity to earn up to 150 RMB credit on their mobile phone – this credit will be distributed as two separate 100 and 50 RMB mobile phone recharges. Participants will receive a 100 RMB phone recharge upon

completion of the first questionnaire and 3-week follow up survey, and 50 RMB for the 3-month follow up survey if that they are eligible for. There are no costs associated with

participating in this research study.

1		
2		
3 4	1	
4 5	2	What if you have questions about this study? If you have any questions, complaints, or
6	3	concerns about the research or your participation in the study, feel free to contact
7	U	concerns accut the research of your participation in the staay, reef nee to contact
8	4	
9	5	What if you have questions about your rights as a research participant? All research on
10	6	human volunteers is reviewed by a committee that works to protect your rights and welfare. If
11	7	you have questions or concerns, or if you would like to obtain information or offer input, please
12 13	8	contact the UNC Institutional Review Board at 1-919-966-3113 or by email to
13 14	9	IRB_subjects@unc.edu. You may also contact the Guangdong Provincial Skin Diseases & STI
15		
16	10	Control Center IRB at 020-83027652 or by email to sesh@seshglobal.org.
17	11	
18	12	
19	13	If you understand and agree to participate in this research study, please select "Agree" from the
20	14	options below. We thank you for your participation!
21 22	15	O Agree
23	16	 Decline (Skip to End of Survey)
24	17	
25	18	
26	19	
27	17	
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29 30		
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2 3 4 5 6 7 8 9 10 11 23 14 15 16 17 18 9 20 21	1 2 3 4 5 6 7 8 9 10 11 12 13 14
$\begin{array}{c} 20\\ 21\\ 22\\ 23\\ 24\\ 25\\ 26\\ 27\\ 28\\ 29\\ 30\\ 31\\ 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 940\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\end{array}$	15 16 17
48 49 50 51 52 53 54 55 56 57 58 59 60	



1		
2 3	1	A Sociadamagnaphiag (09.15)
4	1 2	<u>A. Sociodemographics (Q8-15)</u> The next set of questions will ask you to provide some information about yourself.
5 6	3	The next set of questions will ask you to provide some information about yourself.
7	4	A6. What province or province-level city do you currently live in?
8 9	5	O Beijing
10	6	O Tianjin
11 12	7	O Hebei
13	8	O Shanxi
14	9	O Inner Mongolia
15 16	10	• Liaoning
17	11	-
18	12	• Heilong Jiang
19 20	13	O Shanghai
20 21	14	O Jiangsu
22	15	O Zhejiang
23 24	16	O Anhui
24 25	17	O Fujian
26	18	O Jiangxi
27 28	10 19	 Jilin Heilong Jiang Shanghai Jiangsu Zhejiang Anhui Fujian Jiangxi Shandong
29	20	O Henan
30	20	 Fujian Jiangxi Shandong Henan Hubei Hunan Guangdong Guangxi Hainan Chongqing Sichuan
31 32	22	O Hunan
33	23	O Guangdong
34	24	O Guangxi
35 36	25	O Hainan
37	26	• Chongqing
38	27	O Sichuan
39 40	28	
41	20 29	 Guizhou Yun An Xizang (Tibet) Shaanxi Gansu
42 43	30	• Yun Yun • Xizang (Tibet)
43	31	O Shaanxi
45	32	O Gansu
46 47	33	O Qinghai
48	34	O Ningxia
49	35	O Xinjiang
50 51	35 36	
52		O Hong Kong
53	37 20	O Aomen
54 55	38 20	A7 What site do you summative line in 2 (Tart inset) (Do not display if a sum 1)
55 56	39	A7. What city do you currently live in? (<i>Text input</i>) (Do not display if answered
57 58	40	北京,上海,重庆,天津,香港,澳门 to A6)

1 2		
3	1	
4 5		
6	2 3	A8. What is your current legal marital status (referring to women)?O Not married
7	3 4	• Not married • Engaged or Married
8 9		
10	5	• Separated or Divorced
11	6	• Widowed
12 13	7	
14	8 9	A9. Are you currently enrolled as either a full-time or part-time student?
15		O Yes
16 17	10	O No
18	11	
19	12	A10. What is the highest level of education that you have completed ?
20	13	• High school or below (including Zhongzhuan)
21 22	14	O Some college (Dazhuan)
23	15	O College/Bachelors
24	16	O Masters/PhD
25 26	17	
27	18	A11. What is your total <u>individual</u> monthly income from all sources?
28	19	O Less than 1500 RMB
29 30	20	O Between 1500 and 3000 RMB
30 31	21	O Between 3001 and 5000 RMB
32	22	O Between 5001 and 8000 RMB
33	23	• Greater than 8000 RMB
34 35	24	
36	25	A12. What do you primarily consider yourself to be?
37	26	O Gay
38 39	27	O Bisexual
40	28	O Straight/Heterosexual
41	29	O Transgender
42 43	30	O Unsure/Other
44	31	
45	32	A13. Have you spoken with a physician or other health professional (e.g. HIV testing counselor,
46 47	33	pharmacist) about your sexuality or sexual history with men?
47	34	O Yes
49	35	O No
50	36	
51 52	37	B. MSM Basic Situation (Q16-38)
53	38	<i>The next set of questions will ask you about your sexual behaviors with other men.</i>
54	39	
55 56		
57		
58		
59 60		
00		

2 3 4	commitment to. A "casual partner" is someone who you have sex with and do not have an emotional commitment to.
5 6	B1. How old were you during your first insertive sexual encounter?
7	years old (Number input)
8 9	B2. Was your first insertive sexual encounter with a male or female?
0	• Male (Skip to B4)
1	O Female
2 3	• Other
1	B3. How old were you when you had sex with another man for the first time?
5	years old (Number input)
7	B4. Were you insertive (1) or receptive (0) during your first sexual encounter with another man?
3	O Insertive (1)
9	O Receptive (0)
0 1	• Both insertive (1) and receptive (0)
2	B5. Did you use a condom during your first sexual encounter with another man?
3	O Yes
4 5	O No
6 7	B6. In general, where do you usually go to meet your sex partners (Select all that apply)? O Pub, disco, tearoom, or club
8	• Spa or bath house, sauna, foot or body massage parlor
9	• Park, public restroom, public lawn
0	O Internet
1	O Other
2 3	B7. In the last three months, approximately how many male sex partners have you had?
4 5	male sex partners (Number input) (If answer <1, skip to end of section)
6	B8. Of the men you have had sex with in the last three months, would you consider one of them
7	to be a primary sex partner?

2		
3	1	O Yes
4 5	2	• No (Skip to B16)
6	3	
7	4	B9. In the last three months, approximately how many times per week did you have anal sex
8 9	5	with your primary partner?
10	6	sex encounters per week
11	7	
12	8	B10. How long have you and your primary sex partner been in a relationship?
13 14	9	• C Less than three months
15		
16	10	• Between three and six months
17 18	11	• Between six and twelve months
19	12	• Between one and two years
20	13	• More than two years
21	14	
22 23	15	B11. In the last three months, when you had anal sex with your primary partner, what role did
23	16	you assume?
25	17	• Always insertive (always 1) (Do not display B15)
26		
27 28	18	• Mostly insertive (mostly 1)
29	19	• Both insertive and receptive in similar amounts (Both 1 and 0 in similar amounts)
30	20	• Mostly receptive (mostly 0)
31	21	• Always receptive (always 0) (Do not display B14)
32 33	22	• No anal sex, only oral sex (Neither 1 nor 0) (Do not display B14 and B15)
34	23	
35	24	B12. In the last three months, when you had sex with your primary partner, how frequently did
36 37	25	you or your partner use condoms? (Do not display if "No anal sex, only oral sex" to B11)
38		
39	26	O Never used (Skip to B14)
40	27	O Sometimes used
41 42	28	O Mostly used
43	29	• Always used (Do not display B14, B15)
44	30	
45 46	31	B13. In the last three months, when you had sex with your primary partner did a condom ever
47	32	slip off, tear, or otherwise fail?
48	33	O Yes
49 50	34	O No
50 51	35	
52	36	B14. When you are insertive, the reason(s) you do not use a condom with your primary partner
53	30 37	include (select all that apply):
54 55	57	include (select an that apply).
55 56	38	• I do not want to use one (e.g. personal preference, uncomfortable)
57	39	• Neither of us has a condom
58 50		
59 60		

1		
2 3	1	• My partner does not want me to use one
4 5	2	• The condom is of poor quality
6	3	• I do not have time to use one
7 8	4	• I believe that my partner is loyal to me
9	5	• I am loyal to my partner
10	6	• I am drunk or high
11 12	7	• I am HIV negative or I do not believe I am infected with HIV
13	8	• My partner is HIV negative or I do not believe he is infected with HIV
14 15	9	• Other
16	10	
17 18	11	B15. When you are receptive, the reason(s) your primary partner does not use a condom with
19	12	you include (select all that apply):
20 21	13	• He does not want to use one (e.g. personal preference, uncomfortable)
22	14	• Neither of us has a condom
23 24	15	• I do not want him to use one
25	16	• The condom is of poor quality
26 27	17	• He does not have time to use one
28	18	• I believe that my partner is loyal to me
29	19	• He believes that I am loyal to him
30 31	20	• He is drunk or high
32	21	• He is HIV negative or does not believe he is infected with HIV
33 34	22	• I am HIV negative or does not believe I am infected with HIV
35	23	• Other
36	24	
37 38	25	B16. In the last three months, have you had sex with another man who was not your primary
39	26	partner?
40 41	27	O Yes
42	28	• No (Skip to B23, Should not say "No" to B8 and B16)
43 44	29	
45	30	B17. In the last three months, approximately how many times per week did you have anal sex
46	31	(all casual sex partners combined)?
47 48	32	sex encounters per week
49	33	
50 51	34	B18. In the last three months, when you had anal sex with a casual partner, what role did you
52	35	assume?
53 54	36	• Always insertive (always 1) (Do not display B22)
55	37	 Mostly insertive (mostly 1)
56 57	38	 O Both insertive and receptive in similar amounts (Both 1 and 0 in similar amounts)
57 58 59 60	50	- Dom inservice and receptive in similar amounts (Dom 1 and 0 in similar amounts)
00		For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

2		
3 4	1	• Mostly receptive (mostly 0)
4 5	2	• Always receptive (always 0) (Do not display B21)
6	3	• No anal sex, only oral sex (Neither 1 nor 0) (Do not display B21 and B22)
7 8	4	
9 10	5	B19. In the last three months, when you had sex with a casual partner, how frequently did you or
11 12	6	your partner use condoms? (Do not display if B17 is "0" or B18 is "无肛交,只有口交(既不
13 14	7	是1也不是0)")
15	8	• Never used (Skip to B21)
16 17	9	• Sometimes used
18	10	O Mostly used
19	11	• Always used (Do not display B21, B22)
20 21	12	
22 23 24 25	13 14 15	B20. In the last three months, when you had sex with a casual partner did a condom ever slip off, tear, or otherwise fail? (Do not display if answer to B19 is "Never used") • • • • • • • • • • • • • • • • • • •
26 27	16	O No
28	17	
29	18	B21. When you are insertive, the reason(s) you do not use a condom with a casual partner
30 31	19	include (select all that apply):
32	20	• I do not want to use one (e.g. personal preference, uncomfortable)
33	20 21	• Nuclear of us has a condom
34 35	21	• My partner does not want me to use one
36	22	
37		• The condom is of poor quality
38 39	24 25	• I do not have time to use one
39 40	25	• I am drunk or high
41	26	• I am HIV negative or I do not believe I am infected with HIV
42 43	27	• My partner is HIV negative or I do not believe he is infected with HIV
43 44	28	• Other
45	29	
46 47	30	B22. When you are receptive, the reason(s) your casual partner does not use a condom with you
48	31	include (select all that apply):
49	32	\bigcirc He does not want to use one (e.g. personal preference, uncomfortable)
50 51	32 33	O He does not want to use one (e.g. personal preference, uncomfortable)O Neither of us has a condom
52		
53	34 25	• I do not want him to use one
54 55	35	• The condom is of poor quality
55 56	36	• He does not have time to use one
57 58	37	• He is drunk or high

1 2		
3	1	• He is HIV negative or he does not believe he is infected with HIV
4	2	• I am HIV negative or he does not believe I am infected with HIV
5 6	2	
7		O Other
8	4	
9	5	B23. In the last month, did you have any anal sex without a condom with any male partner? (Do
10	6	not display if answer "1" to B7 and "Always" to B19)
11 12	7	O Yes
13	8	O No
14	9	
15	,	
16	10	C. Heterosexual Sex Situation (Q39-54)
17 18	11	The next set of questions will ask about your sexual behaviors with women.
19	12	
20	13	A "primary female partner" is someone who you have sex with regularly, have an emotional
21	14	commitment to, and/or have married or engaged to be married. A "casual female partner" is
22	15	someone who you have had sex with but do not have an emotional commitment to.
23	16	
24 25	17	C1. Have you ever had vaginal, anal, and/or oral sex with a female partner?
26	18	O Yes
27		
28	19	• No (Skip to End of Section)
29	20	
30 31	21	C2. In the last six months, did you have any vaginal and/or anal sex with a female partner?
32	22	O Yes
33	23	• No (Skip to End of Section)
34	24	
35 36	25	
30 37	25	C3. In the last six months, approximately how many female sex partners have you had?
38	26	female sex partners (Number input) (If answer <1 then skip to End of Section)
39	27	
40	27	
41 42	28	C4. In the last six months, have you had a primary female sex partner?
42 43	29	O Yes
44	30	• No (Skip to C9)
45	31	
46	32	C5. In the last six months, approximately how many times per week did you have vaginal and/or
47 48	33	anal sex with your primary female partner?
40 49	34	sex encounters per week
50	35	sex encounters per week
51	35	
52	36	C6. In the last six months, when you had sex with your primary female partner, how frequently
53 54	37	did you or your partner use condoms?
55		
56	38	• Never used (Skip to C8)
57	39	O Sometimes used
58		
59 60		
50		

2	
$\frac{3}{4}$ 1 O Mostly used	
4 2 O Always used (Do not display C8)	
6 3	
7	
8 4 C7. In the last six months, when you had sex with your primary female partn	er did a condom
9 5 ever slip off, tear, or otherwise fail? 10 6 O Vas	
12 7 O No	
13 8	
14 15 9 C8. The reason(s) you do not use a condom with your primary female partne	r include (select all
16 10 that apply):	i mendde (sereet an
17 ¹⁰ that apply).	
18 11 O I do not want to use one (e.g. personal preference, uncomfortable)	
19 12 O Neither of us has a condom	
21 13 O My partner does not want me to use one	
$\frac{22}{22}$ 14 O The condom is of poor quality	
 ²³/₂₄ ¹⁵ O I do not have time to use one 	
25 16 O I believe that my partner is loyal to me	
²⁶ 17 Q Lam loval to my partner	
 27 17 C Full to high particle 28 18 O I am drunk or high 	
 29 19 O I am HIV negative or I do not believe I am infected with HIV 	
 20 O My partner is HIV negative or I do not believe she is infected with HIV 	
32 21 O Other 33 22	
34	
35 23 C9. In the last six months, have you had sex with another woman who was n	ot your primary
36 37 24 partner?	
37 38 25 O Yes	
$\frac{23}{39} = \frac{25}{30} = \frac{25}{100} = \frac{25}$	hould not onervon
$\frac{36}{40}$ 26 O No (Skip to End of Section if "Always" to C6; otherwise Skip to C14 – S	nould not answer
41 27 "No" to C4 and C9) 42 29	
43 40	
29 C10. In the last six months, approximately how many times per week did you	1 have vaginal
45 30 and/or anal sex (all casual sex partners combined)?	
40 31 sex encounters per week	
48 32	
$_{50}^{49}$ 33 C11. In the last six months, when you had sex with a casual female partner, h	now frequently did
50 33 C11. In the last six months, when you had sex with a casual female partner, f 51 34 you or your partner use condoms?	low nequently and
52 54 you of your partner use condoms:	
53 35 O Never used (Skip to C13)	
54 36 O Sometimes used	
55 56 37 O Mostly used	
57 38 O Always used (Do not display C13; Skip to End of Section if "Always" to	C6)
57 38 O Always used (Do not display C13; Skip to End of Section if "Always" to 58 59	C6)

1 2		
2 3	1	
4	T	
5 6	2	C12. In the last six months, when you had sex with a casual female partner did a condom ever
7	3	slip off, tear, or otherwise fail?
8	4	O Yes
9	5	O No
10	6	
11 12	7	C13. The reason(s) you do not use a condom with a casual female partner include (select all that
13	8	apply):
14	0	appry).
15	9	• I do not want to use one (e.g. personal preference, uncomfortable)
16	10	• Neither of us has a condom
17 18	11	• My partner does not want me to use one
19	12	• The condom is of poor quality
20	13	• I do not have time to use one
21	14	• I am drunk or high
22 23	15	
24		• I am HIV negative or I do not believe I am infected with HIV
25	16	• My partner is HIV negative or I do not believe she is infected with HIV
26	17	• Other
27 28	18	
29	19	
30	20	C14. In the last month, did you have sex without a condom with any female partner? (Do not
31	21	display if answer "1" to B7 and "Always" to B19)
32 33	22	
33 34	23	O Yes
35	24	O No
36	24 25	
37		
38 39	26	
40	27	D. Sexual Behavior (Q55-63)
41	28	The next set of questions will ask about any "risky" sexual behaviors that you may or may not
42	29	have engaged in with other men and/or women.
43 44	30	
45	31	D1. In the last three months, did you ever have sex while you were drunk (from drinking
46		
47	32	alcohol)?
48 49	33	O Yes
50	34	O No
51	35	
52		
53 54	36	D2. In the last three months, was you partner ever drunk (from drinking alcohol) while you had
55	37	sex?
56		
57		
58 59		
60		

2 3		
4	1	O Yes
5	2	• No (Skip to D4 if "No" for D1 and D2)
6 7	3	
8	4	D3. In the last three months, how often did you have sex while you and/or your partner was
9 10	5	drunk?
11	6	O Never
12	7	O Rarely
13 14	8	• Occasionally/Sometimes
15	9	O Very often
16 17	10	O Always
18	11	
19 20	12	D4. In the last twelve months, did you ever use "meth" before or during sex?
21		
22 23	13	O Yes
23 24	14 15	O No
25	15	
26 27	16	D5. In the last twelve months, did you ever participate in group sex with other men?
28	17	• Yes (Display D6)
29 30	18	O No
31	19	
32 33	20	D6. During your most recent group sex experience, did you have any anal sex without a
34	21	condom?
35 36	22	O Yes
37	23	O No
38	24	
39 40	25	D7. In the last twelve months, were you ever paid (with money or gifts) to have sex?
41	26	O Yes
42 43	27	• No (Skip to D9)
44	28	
45 46	29	D8. In the last twelve months, has your main source of income come from having sex with
47	30	customers?
48 49		
4 5 50	31	O Yes
51	32	O No
52 53	33	
54	34 25	D9. In the last twelve months, have you ever paid (with money or gifts) a man to have sex?
55 56	35	O Yes
56 57	36	O No
58	37	
59 60		
-		For near review only - http://bmionen.hmi.com/site/about/quidelines.yhtml

2		
3 4	1	E. Sex Tourism (Q64-79)
5	2	The next set of questions will ask about leaving your city and/or China to purchase sex.
6 7	3	<i>3, 1</i> , <i>1</i>
8	4	E1. Have you ever purchased sex (with money or gifts) while traveling outside of your city of
9	5	residence?
10 11	6	O Yes
12	7	• No (If "No" skip to End of block)
13	8	
14 15	9	E2. Have you ever traveled outside of your city of residence with the primary purpose of
16	10	purchasing sex?
17	11	O Yes
18 19	12	O No
20	13	
21	14	E3. When you traveled to purchase sex, did you travel within China or leave the country?
22 23	15	• Within China (Display E4a)
24	16	• Outside China (Display E4b)
25	17	O Both (Display E4a and E4b)
26 27	18	
28	19	E4a. Which city/cities in China did you travel to when you purchased sex? (Text
29 30	20	Input)
30 31	21	
32	22	E4b. Which country/countries and cities did you travel to when you purchased sex?(Text
33 34	23	Input)
35	24	
36	25	E5. How did you arrive at your destination?
37 38	26	O Car
39	27	O Train
40	28	O Airplane
41 42	29	O Ship
43	30	
44 45	31	E6. Why did you decide to purchase sex while traveling?
46	32	• I was afraid of seeing someone I know in my hometown
47	33	• Sex is less expensive at the location I traveled to
48 49	34	• There was less likelihood that I would have to use a condom if I purchase sex
5 0	35	• I am unable to purchase sex in my hometown
51	36	• I wanted to try sexual intercourse with another gender
52 53	37	• I was drunk or using drugs, I did not plan it
54	38	
55 50	39	E7. When you purchased sex while outside your city of residence, who did you purchase sex
56 57	40	from (select all that apply)?
58		
59 60		
00		

1 2		
3	1	O Men
4	2	O Women
5 6	2	O Transgender
7	4	
8 9	5	E8a. When you purchased sex while outside your city of residence, have you ever had any
10	6	vaginal sex without a condom? (Display if "Women" or "TG" for E7)
11	7	O Yes (Display E17)
12 13	8	O No
14	9	
15 16	10	E8b. When you purchased sex while outside your city of residence, have you ever had any anal
17	11	sex without a condom?
18	12	• Yes (Display E17)
19 20	13	O No
21	14	
22 23	15	
24	16	E9. Once you were at your travel destination (during your most recent trip abroad), how did you
25	17	find someone to purchase sex from (select all that apply)?
26 27	18	• Mobile app portal
28	19	• Online (not an app) portal
29 30	20	• In-person proposition
31	21	O Local establishment
32	22	
33 34	23	E10. During your most recent experience when you purchased sex while abroad, approximately
35	24	how many sex partners did you purchase? (Please enter "0" partners if no partners of the
36 37	25	following type)
38	26	male sex partners (Number input)
39 40	27	female sex partners (Number input)
41	28	transgender sex partners (Number input)
42 43	29	
43 44	30	E11. During your most recent experience when you purchased sex while traveling,
45	31	approximately how much did you pay (RMB) for your last sex encounter?
46 47	32	(Text Input)
48	33	
49 50	34	E12. During your most recent experience when you purchased sex while traveling, of what
50 51	35	nationality was your last partner?
52	36	(Text Input)
53 54	37	
55	38	
56		
57 58		

1 2		
3	1	E13. During your most recent experience when you purchased sex while traveling, the reason(s)
4 5	2	you did not use a condom include (select all that apply):
6 7	3	• I did not want to use one (e.g. personal preference, uncomfortable)
8	4	O I did not want my partner to use one
9	5	• Neither of us had a condom
10 11	6	• My partner did not want to use one (e.g. personal preference, uncomfortable)
12	7	• My partner did not want me to use one
13	8	• The condom was of poor quality
14 15	9	• I did not have time to use one
16	10	• My partner did not have time to use one
17	11	• I was drunk or high
18 19	12	• My partner was drunk or high
20	13	• I am HIV negative or I do not believe I am infected with HIV
21	14	• My partner was HIV negative or I do not believe my partner was infected with HIV
22 23	15	• Wy parallel was first negative of I do not beneve my parallel was infected with first
24	16	E14. How strongly do you agree with the following statement: During my most recent
25	10	experience purchasing sex while traveling, I behaved with less caution than I normally would
26 27	17	while at home
28	18 19	
29		O Strongly yesO Yes
30 31	20	
32	21	O The same
33	22	
34 35	23	• Strongly No
36	24 25	 Strongly yes Yes The same No Strongly No E15. Did you travel alone or with others? Alone With others
37	25	E15. Did you travel alone or with others?
38 39	26	O Alone
40	27	• With others
41	28	
42 43	29	E16. During your most recent experience when you purchased sex while traveling, did you ask
44	30	your partner about his/her HIV status before having sex?
45	31	O Yes
46 47	32	O No
48	33	
49	34	
50 51	35	<u>F. Condom Behavior (Q80-96)</u>
52 53	36 37	The next set of questions will ask about your practices and attitudes in regards to condom use.
53 54	38	F1. In the last three months, how often did you carry a condom with you when there was the
55	39	possibility you may have sex later?
56 57		
58		
59		
60		

1 2		
3	1	O Always
4 5	2	O Sometimes
6	3	• Hardly ever
7	4	O Never
8 9		
10	5	E2 If you not do do not down where is the first place you would go to find and?
11	6 7	F2. If you needed a condom, where is the first place you would go to find one?O Pharmacy or drugstore
12 13	8	• Supermarket
14	9	O Health clinic
15	10	O Community event
16 17	10	• Community event • Restroom vending machine
18	12	• Restroom vending machine • Friend
19	12	O Partner
20 21	13 14	• Pattier • Other
22	14	O Other
23 24	15 16	F3. If I had sex and told my friends that I did not use a condom, they would be angry or
24 25		
26	17	disappointed.
27	18 10	O Strongly agree
28 29	19 20	O Agree
30	20	O Neutral
31 32	21	O Disagree
33	22	• Strongly disagree
34	23	
35 36	24	F4. My friends talk a lot about "safer" sex.
37	25	O Strongly agree
38	26	O Agree
39 40	27	O Neutral
40	28	O Disagree
42	29	• Strongly disagree
43 44	30	
45	31	F5. My friends and I encourage each other before dates to practice "safer" sex.
46	32	O Strongly agree
47 48	33	O Agree
49	34	O Neutral
50	35	O Disagree
51 52	36	• Strongly disagree
53	37	
54	38	F6. If I thought that one of my friends had sex on a date, I would ask them if they used a
55 56	39	condom.
57	40	O Strongly agree
58		
59 60		

1 2		
3	1	O Agree
4	2	O Neutral
5 6		
7	3	O Disagree
8	4	O Strongly disagree
9	5	
10 11	6	F7. If a friend knew that I might have sex on a date, he/she would ask me if I was carrying a
12	7	condom.
13	8	O Strongly agree
14 15	9	O Agree
16	10	O Neutral
17	11	O Disagree
18 19	12	• Strongly disagree
20	13	
21	14	F8. When I think that one of my friends might have sex on a date, I would ask him/her if he/she
22	15	was carrying a condom.
23 24	16	• Strongly agree
25	17	O Agree
26	18	O Neutral
27 28	19	O Disagree
29	20	O Strongly disagree
30	<u>-</u> • 21	
31 32	22	F9. If I might have sex on a date and I do not have a condom, I would make an effort to go out of
33	23	my way and get one.
34 25	24	O Strongly agree
35 36	25	O Agree
37	26	O Neutral
38	27	O Disagree
39 40	28	• Strongly disagree
41	20 29	Subligity disagree
42	30	F10. I would feel comfortable discussing condom use with a potential partner before we engaged
43 44	31	in sex.
45	32	
46		O Strongly agree
47 48	33 24	O Agree
49	34 25	O Neutral
50	35	O Disagree
51 52	36	O Strongly disagree
53	37	
54	38	F11. I would feel comfortable letting a primary partner know that I want to have sex with a
55 56	39	condom.
57 58	40	O Strongly agree
59 60		
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2		
3	1	O Agree
4 5	2	O Neutral
6	3	O Disagree
7	4	• Strongly disagree
8 9	5	
10	6	F12. I would feel comfortable letting a casual partner know that I want to have sex with a
11	7	condom.
12 13	8	• Strongly agree
14	9	• Strongry agree • Agree
15	10	O Neutral
16 17		
17 18	11	O Disagree
19	12	• Strongly disagree
20	13	
21 22	14	F13. I feel confident that I could refuse to have sex with a partner who did not want you to use a
23	15	condom.
24	16	• Strongly agree
25 26	17	O Agree
27	18	O Neutral
28	19	O Disagree
29	20	• Strongly disagree
30 31	21	
32	22	F14. I feel confident in my ability to incorporate putting a condom on myself or my partner into
33	23	foreplay.
34 35	24	• Strongly agree
36	25	O Agree
37	26	O Neutral
38 39	27	O Disagree
40	28	O Strongly disagree
41	29	
42 43		
44	30	F15. I feel confident that I could use a condom with a partner without "breaking the mood."
45	31	O Strongly agree
46 47	32	O Agree
48	33	O Neutral
49	34	O Disagree
50 51	35	• Strongly disagree
52	36	F16. In the last three months, did you ever try to convince a partner who did not want to use a
53	37	condom to use one before having sex?
54 55	38	• Yes, and I was successful
55 56	39	• Yes, but I was unsuccessful
57	40	O No
58		
59 60		

1		
2 3		
4	1	
5	2	F17. In the last three months, did your partner every try to convince you to use a condom when
6	3	you did not want to use one before having sex?
7 8	4	O Yes, and he was successful
9	5	• Yes, but he was unsuccessful
10	6	O No
11	7	
12 13	/	
14	8	
15	9	G. HIV/STI Testing (Q97-132)
16 17	10	<i>The next set of questions will ask about your HIV and STI testing and results. Self-testing refers</i>
18	10	to you administering the test yourself and interpreting results.
19		to you duministering the test yourself and therpreting results.
20	12	
21 22	13	G1. Have you ever been tested for HIV?
23	14	O Yes
24	15	• No (Skip to G25)
25	16	
26 27	17	G2. Have you ever given or received an HIV self-test?
28	18	O Yes
29	19	O No
30 31	20	
32	20	G3. Have you ever self-tested for HIV?
33	22	• Yes
34 25		
35 36	23	• No (Skip to G20) (Do not show G35)
37	24	
38	25	G4. Did someone else force you to take an HIV self-test?
39 40	26	O Yes
40	27	O No
42	28	
43	29	G5. Who was with you when you self-tested? (Can select multiple)O No one, I was alone
44 45	30	• No one, I was alone
46	31	O Partner
47	32	O Friend
48 49	33	
49 50	34	G6. Was your HIV self-test the first time you ever tested for HIV?
51	35	O Yes
52	36	O No
53 54	30 37	
55	37	G7. What happened to your HIV testing frequency after you first used a self-test?
56	20	O7. What happened to your fir v testing frequency after you first used a sen-test?
57 58		
58 59		
60		

2		
3 ⊿	1	O Increased
4 5	2	O Decreased
6	3	O No change
7 8	4	
o 9	5	G8. Have you ever received a positive result with HIV self-testing?
10	6	O Yes
11 12	7	• No (Skip to G11)
13	8	
14	9	
15 16	10	G9. Has using an HIV self-test caused you subsequent suicidal feelings?
17	11	O Yes
18	12	O No
19 20	13	
20 21	14	G10. Has using an HIV self-test led to a violent confrontation (physically hitting)?
22	15	O Yes
23 24	16	O No
24 25	10	
26	18	The next set of 4 questions will ask you to recall experiences specific to self-testing.
27 28	10 19	The next set of 4 questions will ask you to recall experiences specific to self-testing.
20 29	20	G11. Has using an HIV self-test has increased your desire to seek follow-up care, as opposed to
30	20 21	other forms of HIV testing?
31 32	21	O Yes
33	22	O No
34	23 24	
35 36	24 25	G12. Self-testing for HIV gives me a sense of empowerment by allowing me to choose when I
37		
38	26	test.
39 40	27	O Strongly Agree
40 41	28	O Agree
42	29	O Neutral
43 44	30	O Disagree
44 45	31	• Strongly Disagree
46	32	
47 40	33	G13. Self-testing for HIV gives me a sense of empowerment by allowing me to choose where I
48 49	34	test.
50	35	O Strongly Agree
51 52	36	O Agree
52 53	37	O Neutral
54	38	O Disagree
55	39	O Strongly Disagree
56 57		
58		
59 60		
60		

1		
1 2		
3	1	
4	2	G14. Self-testing for HIV gives me a sense of empowerment by allowing me to choose with
5 6		whom I test.
7	3	
8	4	O Strongly Agree
9	5	O Agree
10 11	6	O Neutral
12	7	O Disagree
13	8	O Strongly Disagree
14 15	9	
16	10	G15. Did you confirm your positive HIV self-test result at the CDC or hospital?
17	11	O Yes
18 19	12	O No
20	13	
21	14	G16. Did you receive post-self test counseling?
22	15	• Yes (show G17)
23 24	16	O No
25	17	
26	18	G17. What kind of post-test counseling did you receive?
27 28	19	O online
29	20	• telephone
30	20 21	O in-person
31 32	21	• III-person
32 33		C19 Where did way altain your UIV salf test lit?
34	23	G18. Where did you obtain your HIV self-test kit?
35	24	O online
36 37	25	O hospital
38	26	O pharmacy
39	27	O CBO
40 41	28	• friend
42	29	
43	30	 G friend G19. Was your HIV self-test oral or blood? Oral O Blood
44 45	31	• Oral
46	32	O Blood
47	33	
48	34	G20. In the last two years, how frequently did you get tested for HIV?
49 50	35	O Less than once every two years
51	36	O Once a year
52	37	• Once every six months
53 54	38	• Once every three months
55	39	• Monthly
56		
57 58	40	
56 59		
60		
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2		
3	1	G21. What was the result of your most recent HIV test?
4 5	2	• HIV positive/infected (Display G23)
6	3	O HIV negative/uninfected
7 8	4	• I never got my test results (Skip to G25)
9 10	5	
11	6	G22. Did you notify your primary male sex partner about your most recent HIV test result?
12	7	O Yes
13 14	8	O No
14 15	9	• I do not have a regular partner (Do not display G25)
16	10	
17 18	11	G23. Have you ever taken anti-retroviral therapy (ART) for your HIV infection?
19	12	• Yes – I have taken, and I am currently taking
20 21	13	• Yes – I have taken, but I am currently not taking (Display G24)
22	14	O No – I have never taken
23	15	
24 25	16	G24. Why did you stop taking ART? (Select all that apply)
26 27	17	O It was too expensive
28	18	• I didn't like the side effects
29	19	• I didn't feel that it was working
30	20	• I thought it was cumbersome (too much time, forgot to take, etc.)
31 32	21	O Stigma
33	22	
34 35	23	G25. Has your primary male sex partner ever been tested for HIV? (Do not display if no to B8)
36	24	O Yes
37 38	25	• No (Skip to G27)
39	26	
40 41	27	G26. What was the result of your primary male sex partner's most recent HIV test?
42 43	28	• HIV positive/infected
43 44	29	 HIV positive/infected HIV negative/uninfected Never got test results
45	30	• Never got test results
46	31	O I don't know
47 48	32	
49 50	33	G27. Have you ever had a male sex partner who tested HIV positive?
51 52	34	O Yes
53	35	• No (Skip to G30)
54	36	• I don't know (Skip to G30)
55 56	37	
50 57 58 59	38	G28. Did you ever have any anal sex without a condom with a HIV positive partner?
60		

1		
2		
3 4	1	O Yes
5	2	O No
6 7	3	
8	4	G29. Approximately how many HIV positive male sex partners have you had?
9 10	5	sex partners (Number input)
11	6	
12	7	G30. Have you ever been tested for syphilis?
13	8	O Yes
14 15	9	• No (Skip to G36)
16	10	
17	11	G31. Have you ever used a self-testing kit for syphilis?
18 19	12	O Yes
20	13	• No (Skip to G36)
21	14	
22 23	15	G32. Was your self-test the first time you ever tested for syphilis?
24	16	• Yes (Do not display G33)
25	17	O No
26	18	
27 28		$C^{22} W_{1} + 1 = 0 = 14 = 0 = 0 = 1111 = 4 = 111 = 111 = 4 = 111 = 111 = 4 = 111 =$
29	19	G33. What happened to your syphilis testing frequency after you first used a self-test?
30	20	O Increased
31	21	O Decreased
32 33	22	O No change
34	23	
35	24	G34. Where did you obtain your syphilis self-test kit?
36 37	25	O online
38	26	• hospital
39	27	O pharmacy
40 41	28	O CBO
41	29	G35. Have you ever performed syphilis and HIV self-testing together?
43	30	
44	31	G35. Have you ever performed syphilis and HIV self-testing together?
45 46	32	O Yes
40 47	33	O No
48	34	
49 50	35	G36. In the last twelve months, which of the following services did you receive (Select all that
50 51	36	apply):
52		
53		
54 55		
56		
57		
58 59		
59 60		

2		
3 4	1	• Condom distribution
4 5	2	• Lubricant distribution
6	3	• Peer Education
7 8	4	• STD Diagnosis or Treatment
8 9	5	• HIV counseling or Testing
10	6	• AIDS/STD Materials (pamphlets, etc.)
11	7	
12 13	8	
14	9	I. Community Engagement (Q133-143)
15	10	<i>The next set of questions will ask you about your experiences with activities in your community</i>
16 17	11	promoting sexual health.
18	12	promoting sexual neutrit.
19	13	I1. In the last three weeks, have you viewed any videos promoting condom use among MSM?
20 21	13 14	• Yes
22	15	O No
23	15 16	
24 25	10	I2. In the last three weeks, have you viewed any videos promoting HIV testing among MSM?
26		
27	18	O Yes
28 29	19	O No
30	20	
31	21	I3. Are you aware of any ongoing community events promoting sexual health among MSM?
32 33	22	O Yes
34	23	O No
35	24	
36 37 38	25 26	I4. Have you ever helped organize a testing and/or awareness campaign (e.g. HIV, condom use, etc.) that promoted sexual health among MSM?
39 40		
41 42		
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45 46		
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49 50		
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52		
53 54		
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56 57		
57 58		
59		
60		

1 2		
3	1	O Yes
4 5	2	O No
5 6	3	
7	4	I5. Have you ever volunteered at a health clinic or other location that provided sexual health
8 9	5	services among MSM?
10	6	O Yes
11	7	O No
12 13	8	
14	9	I6. Have you ever encouraged someone else to get tested for HIV and/or another sexually
15 16	10	transmitted disease?
17	11	O Yes
18	12	O No
19 20	13	
21	14	I7. Have you ever accompanied a friend or partner to a testing facility to get tested for HIV
22 23	15	and/or another sexually transmitted disease?
23 24	16	O Yes
25	17	O No
26 27	18	
28	19	18. How important to you is community engagement and participation in developing sexual
29	20	health campaigns (for your own community)?
30 31	21	O Very important
32	22	O Important
33 34	23	• Neither important or not important
35		
36		
37 38		
39		
40 41		
42		
43		
44 45		
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47 48		
49		
50 51		
51 52		
53		
54 55		
56		
57		
58 59		
60		

1	• Slightly important
2 3	O Not important
4 5	I9. Have you ever participated in online forums or discussions on social media (ie. Weixin, Weibo, Twitter, or other on-line communities) about about sexual health, condom use, or
6	HIV/STD testing or related services?
7	O Yes
8 9	O No
10	I10. Do you have a Weibo account?
11	• Yes (Display I11)
12	O No
13	
14 15	I11. How many Weibo followers do you have?
15	O Less than 100
16 17	○ 101-500○ 501-1000
17	• 501-1000 • 1001-1500
19	O 1501-2000
20	• More than 2001
21	
22	
23	Video 1: Crowdsourcing
24 25 26 27	We would now like you to watch a short-one minute video. Please make sure to view the entire video before closing the window. The video may take up to a minute to load, thank you for your patience.
28	Video 2: Social Marketing
29 30 31 32	We would now like you to watch a short-one minute video. Please make sure to view the entire video before closing the window. The video may take up to a minute to load, thank you for your patience.
33	End of Survey
34 35 36 37	Please confirm your mobile phone number at this time to receive our reminder of the follow-up survey and reward. Please notice that only after you finish the 3 week follow up could you get the 100 top up reward.
37 38 39	• Mobile Phone #s: (<i>Text Entry</i>) (must be 11 digits)
40	
41	Follow-up Contact (Q144-145)

1		
2 3	1	
4	1	
5 6	2 3	FUC1. Thank you for taking the time to complete our survey! Based on your responses to our
7		questionnaire, we request that you to complete a follow-up survey in three weeks' time. Upon
8	4	completion of this survey, you will receive an additional 50 RMB mobile phone recharge! When
9	5	the time comes, we would like to send you a reminder to complete the survey via QQ. Will you
10 11	6	agree to provide us your QQ number? If you agree, you will be contacted by the following user:
12	7	
13	8	Number: 2663701478
14 15	9	Name: 赛思研究团队
16	10	
17 18	11	• Agree (Display FUC2)
19	12	O Disagree
20	13	
21 22	14	FUC2. Please input your QQ number:
23	15	• QQ number:
24 25	16	
25 26	17	Referral (Q146)
27	18	
28	19	R1. If you think any of your male friends would be interested in participating in our research
29 30	20	survey, please share our study with them! Alternatively, you can provide us with either their
31	20 21	mobile phone or QQ number, and we will send them a link to our survey. (Please enter as many
32	22	unique numbers as you are willing in the spaces provided.)
33 34	23	unique numbers as you are winning in the spaces provided.)
35	24	If you provide a QQ number for referral, please notify your friend(s) that they will be contacted
36 37	25	by 赛思研究团队 (#: 2663701478).
38		
39	26	If you provide a mobile phone number for referral, please notify your friend(s) that they will be
40 41	27	contacted by 18613067997.
42	28	• Mobile Phone #s:
43	29	 Mobile Phone #s: QQ numbers:
44 45	30	
46	31	
47		
48 49		
50		
51		
52		
53 54		
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57 58		
58 59		
60		



SPIRIT 2013 Checklist: Recommended items to address in a clinical trial protocol and related documents*

11 12 13	Section/item	ltem No	Description	Addressed on page number
14 15 16	Administrative inf	formatior		
17 18	Title	1	Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym	1
19 20	Trial registration	2a	Trial identifier and registry name. If not yet registered, name of intended registry	3
21		2b	All items from the World Health Organization Trial Registration Data Set	1,14-15
22 23	Protocol version	3	Date and version identifier	1
24 25	Funding	4	Sources and types of financial, material, and other support	<u>14</u>
26 27	Roles and	5a	Names, affiliations, and roles of protocol contributors	<u> </u>
28 29	responsibilities	5b	Name and contact information for the trial sponsor	14
30 31 32 33		5c	Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	15
 34 35 36 37 38 39 40 41 42 43 44 		5d	Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	<u>N/A</u> 1
45 46 47 48	l əb əupirlqsrgoildi8 4		a as 10.1136/md. nopen.2015. on 3 October 2016. Downloaded from http://bmjopen.bmj.com/ on June 14, 2025 المحافظ Enseignement Superieur (BEE) . Protected by copycigh seing in the uses i electronic and id in nin in a local win and electro i echnologies	nəqO LM٤: أناحة مالمانغام

BMJ Open

2					
3 4	Introduction				
5 6 7	Background and rationale	6a	Description of research question and justification for undertaking the trial, including summary of relevant	<u>4</u>	_
8 9		6b	Explanation for choice of comparators	4	
10 11	Objectives	7	Specific objectives or hypotheses	5	
12 13 14 15	Trial design	8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, noninferiority, exploratory)	6	_
16	Methods: Participa	nts, inte	erventions, and outcomes		
17 18 19	Study setting	9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained	6	_
20 21 22 23	Eligibility criteria	10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and	7	_
23 24 25 26	Interventions	11a	Interventions for each group with sufficient detail to allow replication, including how and when they will be	8	_
20 27 28 29		11b	Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose	<u>N/A</u>	_
30 31 32		11c	Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return, laboratory tests)	8	_
33 34		11d	Relevant concomitant care and interventions that are permitted or prohibited during the trial	<u>N/A</u>	
35 36 37 38 39	Outcomes	12	Primary, secondary, and other outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, _ median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended	9	_
40 41 42 43	Participant timeline	13	Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for _ participants. A schematic diagram is highly recommended (see Figure)	12	_
44					2
45 46 47			Protected by copyrights เก่าผู้เก่าเราได้เรียง เราเรา อายังเล่า เล่าเล่า เล่าเล่า เล่า เล่า เล่า เล		
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Sample size	14	Estimated number of participants needed to achieve study objectives and how it was determined, including _ clinical and statistical assumptions supporting any sample size calculations	<u>10</u>	_
Recruitment	15	Strategies for achieving adequate participant enrolment to reach target sample size _	7	_
Methods: Assignn	nent of i	interventions (for controlled trials)		
D Allocation:				
2 Sequence 3 generation 5	16a	Method of generating the allocation sequence (eg, computer-generated random numbers), and list of any _ factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions	<u>11</u>	_
7 3 Allocation 9 concealment 0 mechanism 1	16b	Mechanism of implementing the allocation sequence (eg, central telephone; sequentially numbered,	<u>11</u>	_
Implementation	16c	Who will generate the allocation sequence, who will enrol participants, and who will assign participants to	<u>11</u>	_
Blinding (masking)	17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how	<u>N/A</u>	_
	17b	If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant's _ allocated intervention during the trial	<u>N/A</u>	_
Methods: Data col	lection,	management, and analysis		
Data collection methods	18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related _ processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	<u>10</u>	
	18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be	9	_
2 3 4				
5 6	-,	Protected by copyrights (ល្បាន and a copyright and a copyrigh		
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Page	61	of	61
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1					
2 3 4 5 6	Data management	19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality _ (eg, double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol	<u>14</u>	
7 8 9	Statistical methods	20a	Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the _ statistical analysis plan can be found, if not in the protocol	11	
10 11		20b	Methods for any additional analyses (eg, subgroup and adjusted analyses)	12	
12 13 14		20c	Definition of analysis population relating to protocol non-adherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)	12	
15 16	Methods: Monitorir	ng			
17 18 19 20 21 22	Data monitoring	21a	Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of _ whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed	9	_
23 24 25		21b	Description of any interim analyses and stopping guidelines, including who will have access to these interim _ results and make the final decision to terminate the trial	N/A	
26 27 28	Harms	22	Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct	N/A	_
29 30 31	Auditing	23	Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	<u>N/A</u>	
32 33 34	Ethics and dissemi	nation			
35 36 37	Research ethics approval	24	Plans for seeking research ethics committee/institutional review board (REC/IRB) approval	12	
38 39 40 41 42	Protocol amendments	25	Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC/IRBs, trial participants, trial registries, journals, regulators)	12	
43 44					4
45 46 47		.6	Protected by copyrights เกริงกฎรูก (ครายการการการการการการการการการการการการการก		
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Consent or assent	26a	Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)	13
	26b	Additional consent provisions for collection and use of participant data and biological specimens in ancillary _ studies, if applicable	<u>N/A</u>
Confidentiality	27	How personal information about potential and enrolled participants will be collected, shared, and maintained _ in order to protect confidentiality before, during, and after the trial	13
Declaration of interests	28	Financial and other competing interests for principal investigators for the overall trial and each study site _	16
Access to data	29	Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that	14
Ancillary and post- trial care	30	Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial _ participation	<u>N/A</u>
Dissemination policy	31a	Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals,	14
	31b	Authorship eligibility guidelines and any intended use of professional writers	<u>N/A</u>
	31c	Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code _	<u>N/A</u>
Appendices			
Informed consent materials	32	Model consent form and other related documentation given to participants and authorised surrogates	25
Biological specimens	33	Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	23
Amendments to the p	orotoco	that this checklist be read in conjunction with the SPIRIT 2013 Explanation & Elaboration for important clarificati I should be tracked and dated. The SPIRIT checklist is copyrighted by the SPIRIT Group under the Creative Com -NoDerivs 3.0 Unported" license.	
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BMJ Open

Comparing the effectiveness of a crowdsourced video and a social marketing video in promoting condom use among Chinese men who have sex with men: A study protocol

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Manuscript ID	bmjopen-2015-010755.R2
Article Type:	Protocol
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Complete List of Authors:	Liu, Chuncheng; UNC Project China Mao, Jessica; UNC Project China Wong, Terrence; UNC Project China Tang, Weiming ; UNC Project China Tang, Songyuan; UNC Project China Zhang, Ye; UNC Project China; Guangdong Provincial Center for Skin Diseases and Sexually Transmitted Infections Control Zhang, Wei; UNC Project China Qin, Yilu; UNC Project China Chen, Zihuang; Danlan Ma, Wei; Shandong University School of Public Health Kang, Dianming; Shandong Center for Disease Prevention and Control Li, Haochu; UNC Project China; Shandong University School of Public Health Liao, Meizhen; Shandong Center for Disease Prevention and Control Mollan, Katie; University of North Carolina at Chapel Hill Hudgens, Michael; University of North Carolina at Chapel Hill Huang, Shujie; Guangdong Provincial Center for Skin Diseases and Sexually Transmitted Infections Control Yang, Bin; Guangdong Provincial Center for Skin Diseases and Sexually Transmitted Infections Control Wei, Chongyi; University of California - San Francisco, Department of Epidemiology and Biostatistics & Global Health Sciences Tucker, Joseph; UNC Project China
Primary Subject Heading :	Public health
Secondary Subject Heading:	HIV/AIDS, Infectious diseases, Research methods
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1	Comparing the effectiveness of a crowdsourced video and a social marketing video in
2	promoting condom use among Chinese men who have sex with men: A study protocol
3	
4	Chuncheng Liu ¹ *, Jessica Mao ¹ *, Terrence Wong ¹ *, Weiming Tang ¹ , Lai Sze Tso ¹ , Songyuan
5	Tang ¹ , Ye Zhang ^{1,6} , Wei Zhang ¹ , Yilu Qin ¹ , Zihuang Chen ² , Wei Ma ³ , Dianming Kang ⁴ , Haochu
6	Li ^{1,3} , Meizhen Liao ⁴ , Katie Mollan ⁵ , Michael Hudgens ⁵ , Barry Bayus ⁵ , Shujie Huang ⁶ , Bin
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12	⁴ Shandong Center for Disease Prevention and Control
13	⁵ University of North Carolina at Chapel Hill
14	⁶ Guangdong Provincial Center for Skin Diseases and Sexually Transmitted Infections Control
15	⁷ University of California, San Francisco
16	
17	Chuncheng Liu, Jessica Mao and Terrence Wong contributed equally to this work and are co-
18	first authors.
19	
20	#Corresponding Author: jdtucker@med.unc.edu
21	
22	Version 1.0
23	

Introduction Crowdsourcing has been used to spur innovation and increase community engagement in public health programs. Crowdsourcing is the process of giving individual tasks to a large group, often involving open contests and enabled through multi-sectoral partnerships. Here we describe one crowdsourced video intervention in which a video promoting condom use is produced through an open contest. The aim of this study is to determine whether a crowdsourced intervention is as effective as a social marketing intervention in promoting condom use among high-risk men who have sex with men (MSM) and transgender male-to-female (TG) in China. Method We evaluate videos developed by crowdsourcing and social marketing, respectively. The crowdsourcing contest involved an open call for videos. Entries were judged on capacity to promote condom use, to be shareable or "go viral", and to give value to the individual. 1170 participants will be recruited for the randomized controlled trial. Participants need to be MSM age 16 and over who have had condomless anal sex in the last 3 months. Recruitment will be through an online banner ad on a popular MSM webpage and other social media platforms. After completing an initial survey, participants will be randomly assigned to view either the social marketing video or the crowdsourcing video. Follow-up surveys will be completed at both 3 weeks and 3 months after initial intervention to evaluate condomless sex and related secondary outcomes. Secondary outcomes include condom social norms, condom negotiation, condom self-efficacy, HIV/syphilis testing, frequency of sex acts and incremental cost.

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1	Ethics and dissemination:
2	Approval was obtained from the ethical review boards of the Guangdong Provincial Center for
3	Skin Diseases and STI Control, UNC, and UCSF. The results of this trial will be made available
4	through publication in peer-reviewed journals.
5	
6	Trial registration number: This trial was registered in ClinicalTrials.gov (NCT02516930).
7	
8	
9	
10	Strengths and Limitations of this study protocol:
11	• This will be one of the few randomized controlled trials evaluating crowdsourcing
12	• The use of a large MSM platform will allow us to reach a large number of MSM who do
13	not disclose their sexual orientation to doctors or others
14	• No biomarker data will be collected and there are inherent limitations associated with
15	behavioural outcomes
16	

2 Male Sexual Health

Male condoms have long been recognized as an effective method for reducing the risk of HIV and other sexually transmitted diseases (STDs)[1, 2], but men who have sex with men (MSM) infrequently use condoms in China[3-6]. The resulting high incidence of HIV and STDs among MSM suggests the need for novel health promotion campaigns. One systematic review[7] and one literature review among MSM[8] demonstrate that social marketing campaigns are effective in promoting condom use, but the persistence of these behavioural changes over time is unclear. We propose that crowdsourcing may substantially improve on existing methods for developing condom promotion campaigns.

12 Crowdsourcing

Crowdsourcing is the process of giving individual tasks to a large group, often involving open contests and enabled through multisectoral partnerships. While the process originated in the private sector[9], intended to aid research, development and dissemination, it has since been widely adopted. In 2010, the Executive Office of the President of the United States urged federal agencies to utilize crowdsourcing as a method to develop innovative approaches to governmental initiatives[10]. A crowdsourcing method differs from a social marketing method in several ways[11]. Crowdsourcing is a bottom-up approach, utilizing the community for idea generation through implementation rather than relying on the expertise of public health experts. This ensures a higher degree of community engagement than approaches utilizing social marketing do, which tends to be a top-down approach. Crowdsourcing promotes innovation because it removes cognitive fixation, in which innovation is hampered due to new ideas being strongly

1 2		
- 3 4	1	influenced by prior examples[12-16]. By engaging more people with less experience, this
5 6	2	phenomenon is avoidable and allows for a more creative process[17]. Our team has previously
7 8 9	3	used crowdsourcing successfully to develop an effective HIV testing promotion video and
10 11	4	images promoting sexual health.[18]
12 13 14	5	
15 16	6	OBJECTIVES
17 18	7	Aims and Hypotheses
19 20 21	8	Specific Aim 1: To compare the effect of a crowdsourced one-minute video to a social marketing
22 23	9	one-minute video in promoting condom use among MSM and transgender male-to-female (TG)
24 25 26	10	in China. This will be evaluated using data from follow-up surveys at 3 weeks and 3 months
27 28	11	post-video.
29 30	12	Hypothesis 1: Crowdsourced videos are not inferior to social marketing videos to promote
31 32 33	13	condom use among MSM and TG in China.
34 35	14	
36 37 38	15	Specific Aim 2: To compare the cost of using crowdsourcing compared to social marketing
39 40	16	methods for developing short videos focused on promoting condom use among MSM and TG
41 42 43	17	individuals in China.
43 44 45	18	Hypothesis 2: A crowdsourced video is cost saving compared to a social marketing video for
46 47	19	promoting condom use.
48 49 50	20	
51 52	21	Specific Aim 3: To compare the effect of a crowdsourced one-minute video to a social marketing
53 54 55	22	one-minute video in changing condom use self-efficacy and self-reported behaviour among
55 56 57 58 59 60	23	MSM and TG individuals in China.

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Hypothesis 3: Crowdsourced videos are not inferior to social marketing videos in changing
condom use self-efficacy and self-reported behaviour among MSM and TG in China.
METHODS
Trial design
This study will be a pragmatic, non-inferiority, randomized controlled trial comparing two
groups – MSM who watch a crowdsourced video and MSM who watch a social marketing video.
Allocation to each arm will be done with a 1:1 ratio using a computer-based algorithm. The
study is projected to run from November 2015 to February 2016.
Setting
This study survey will be made available to MSM across China through a popular online portal,
Danlan and gay mobile dating app, Blued. Danlan.com is an online gay community that allows
MSM to connect with each other for relationships, events, and communication. The website is
maintained by a private corporation, Danlan, which also developed the for-profit app Blued.
Blued has become very popular among the MSM population, recently reaching 15 million
users[19]. User personal information is protected and secure. Studies have shown that the
Internet has become a popular method for MSM to find partners, with a reported 28.3-88.4% of
MSM using the Internet to seek sexual partners [20]. While Internet-based interventions have yet
to be widely dispersed in mainland China, early studies show that such e-technology-based
approaches would be well received[21].
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METHODS Trial design This study will be a pragmatic, non-inferiority, randomized con groups – MSM who watch a crowdsourced video and MSM wh Allocation to each arm will be done with a 1:1 ratio using a con study is projected to run from November 2015 to February 201 Setting This study survey will be made available to MSM across China Danlan and gay mobile dating app, Blued. Danlan.com is an on MSM to connect with each other for relationships, events, and maintained by a private corporation, Danlan, which also develo Blued has become very popular among the MSM population, re users[19]. User personal information is protected and secure. St Internet has become a popular method for MSM to find partner MSM using the Internet to seek sexual partners [20]. While Internet to be widely dispersed in mainland China, early studies show th approaches would be well received[21].

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1 Recruitment

Participants will be recruited using a banner link on a popular MSM app "Blued" (Danlan,
Beijing, China), as well as through announcements sent via Danlan's social media (Weibo, a
microblogging platform, WeChat, a messaging platform, and QQ, a messaging platform). Blued
is China's most popular social networking mobile application among MSM. Blued has 15
million followers with 24% (3.6 million people) daily activity rate[19]. Danlan has over 17,000
followers on social media platform Weibo and forwards news via WeChat and QQ to over

8 429,000 followers[22].

10 Eligibility

The survey is voluntary, and to be eligible, participants must state that they were born biologically male, had anal sex with men at least once during their lifetime, have had condomless anal/vaginal sex in the past three months, are at least 16 years of age, and able to complete an online written survey in Chinese. All participants must agree to an online informed consent and provide their cell mobile number. Participants who do not meet these criteria will not be allowed to proceed with the survey.

Formative work

Prior to survey development, we will interview key informants specifically about conducting an
Internet survey among MSM in China. Survey development will be done drawing on previous
surveys and a review of existing literature, focusing on English and Chinese language studies.
The survey will be developed in both English and Chinese but conducted entirely in Chinese.
The Chinese version of the survey will be piloted online with 150 volunteers to gauge post-

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intervention condom usage rates and to estimate the necessary sample size for the non-inferiority study. The survey will also be piloted with Danlan to ensure there are no problems with distribution. Feedback will be solicited online regarding question wording and interpretation. Pilot data will not be included in the final analysis. The purpose of this extensive formative research is to ensure that the online survey is simple and easy to complete. The CONSORT-Ehealth checklist for online surveys^[23] will be used to ensure completeness. The online survey will be created using Qualtrics Survey Software (Qualtrics, Provo, Utah) and the videos will be hosted on Tencent Video (Tencent, Shenzhen, China).

10 Interventions

The development of the crowdsourcing video was publicized via open contest. We posted a public call on social media platforms (Weibo, WeChat) for videos promoting condom use awareness. For further promotion, we hosted in-person events at several different college campuses in Guangzhou, China and worked with local community-based organizations to publicize the contest. In-person events included didactic sessions, interactive feedback sessions, and community-driven events. Ten judges, including community health leaders, doctors, business leaders, and researchers, evaluated the videos. Each judge scored the video entries on a scale of 1-10 (10 the highest score) and a single winner was identified. The winning video will be included in the survey as the intervention arm of the RCT. The one-minute video depicts a group of men dressed as cartoon villains attempting and failing to break down a wall, followed by an image of condoms. Our team will delay public announcement of the contest winner to allow time for adequate intervention implementation and comparison. The winning video will be

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publicly announced 2 weeks after the intervention is evaluated using the 3-month follow-up
 survey.

The social marketing video was commissioned from a working group in Jinan. This one-minute video contains audio of two men about to engage in intercourse, but stopping to discuss condom use and sexual health as a symbol of love. Script of the video was written by experts in San Francisco and modified by experts and the gay community in Jinan and Qingdao. The video was shot by an advertising company based in Jinan.

9 Data collection

A survey will be developed using the Qualtrics survey tool. Participants will answer 150 questions on socio-demographic information, sexual behaviour, social norms, condom self-efficacy, HIV testing, and community engagement. At the end of the survey, participants will be randomly assigned to one of two intervention arms, the crowdsourcing video or social marketing video, and will view the appropriate video. Participants will not be informed of the video options upon randomization, and will not see the alternate intervention video. Participants will provide mobile telephone numbers, and will receive text message reminders three weeks after initial survey completion to complete the three-week follow-up survey. After completion of the three-week survey, participants will be compensated for the first portion of the study (about \$15.87 USD). Three months after completion of the initial survey, participants will again receive a mobile telephone reminder to complete the three-month survey. After completion participants will receive the second portion of their compensation (about \$7.93 USD).

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1	Participants will register for our survey using a mobile number. Following completion of data
2	collection, data entries will be screened for duplicate mobile numbers, and the second entry will
3	be excluded. Entries with invalid mobile numbers will also be excluded.
4	
5	A data monitoring committee will not be required as this study employs low risk behavioural
6	interventions. All participants will provide consent prior to taking part in the study.
7	
8	Measures
9	Data from survey items on socio-demographics and sexual behaviours will be collected using
10	standardized survey instruments immediately before video watching, at three weeks after video
11	watching, and at three months after video watching. Socio-demographic characteristics include
12	participants' age, place of residence, highest level of education completed, annual income,
13	marital status, sexual orientation, and sexual orientation disclosure. Behavioural variables
14	include number of sex acts in the past three weeks, condomless sex with men, condomless sex
15	with women, condom self-efficacy, and other secondary outcomes (See Supplemental File 1).
16	
17	OUTCOMES
18	Primary Outcomes
19	The primary outcome will be any condomless vaginal or anal sex (with any sex partner) among
20	MSM and TG individuals following the video intervention. A participant is counted as having
21	had condomless sex if they participated in any act of sexual intercourse (vaginal or anal) that has
22	taken place without use of a condom. Using a post-intervention survey, participants will be asked
23	with what frequency they have used condoms since watching the video: all, most, some or none

2 3	1	of the time (See Supplemental File 2). The three-week follow-up survey will ask about the three
4 5 6	2	weeks following the intervention, and the three-month follow-up will cover the three months
6 7 8		
9 10	3	following the intervention. Individuals who have not had sex in the interval will be classified as
10 11 12	4	having no condomless sex.
13 14	5	
15 16	6	Secondary Outcomes
17 18	7	• Post-intervention sex acts
19 20 21	8	Condom use social norms
22 23	9	Condom self-efficacy
24 25 26	10	Condom use negotiation
27 28	11	• HIV testing and self testing
29 30 31	12	• Syphilis testing and self testing
32 33	13	• Incremental cost of intervention associated with respective video interventions per
34 35	14	individual reporting increased condom use or no sex since intervention. Other cost-
36 37 38	15	related data from organizations involved in making the intervention videos will be
39 40	16	collected. Detailed information on incremental costs can be found in Table 1.
41 42 43	17	More detailed explanations of secondary outcomes can be found in Supplemental File 1.
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1	Table 1. Incremen	tal costs associated with social 1	marketing and crowdsourced arms.

	Financial costs	Economic costs
Phase		
Contest development	Inputs to be capture, can all directly be found in the project financial accounts, main challenge is to allocate across components and to allocate SESH overhead costs	<i>Extra inputs not already captured by financial costs</i>
Video contest (including production)	Money paid for planning and implementation	 For social marketing arm: Personnel of CBOs/CDC (director of movie, actors, film editors) Rental of professional video equipment (if applicable) Building cost (office renting) for CBOs/CDC* Equipment and software cost (if applicable) * For crowdsourced arm: Personnel of SESH (although all volunteer) Judging opportunity cost (volunteer) Steering Committee planning meeting (three one-hour meetings) Building cost (office renting)* In-person promotion costs
Survey start up	Money paid to launch the survey (start-up)	 SESH personnel costs, to design and maintain the program Equipment cost of SESH (computer and other items)* Software (Qualtrics)*
Survey implementation and intervention	Money paid to the participants (implementation) Money paid for the software used for follow up (implementation)	SESH personnel costs
Testing		Cost for condoms (from CDC)
*The cost will be annualized and we will calculate a proportion of the cost to account for items only being used the study time frame. The key idea is that some of these phases are like capital goods, where they only need to be done once but have benefits for longer (thus requiring annualisation of costs), while the implementation phase has a life only as long as the survey is running.		

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Sample size calculation

Sample size for this non-inferiority trial was determined assuming an equal probability of
reporting condomless sex in the crowdsourced video and social marketing video arms. Assuming
a 50% probability of condomless sex in each arm, a one-sided significance level (α) of 2.5%, a
non-inferiority limit of 10%, and loss to follow-up of 10%, a total sample size of 1170
individuals was required (585 in each arm) to have 90% power (1-β). The sample size was
calculated using the formula [24]:

$$n = f(\alpha, \beta) \frac{[\pi_s (1 - \pi_s) + \pi_e (1 - \pi_e)]}{(\pi_s - \pi_e - d)^2}$$

10 where π_s and π_e are the true probabilities of reporting condomless sex in the social marketing 11 video (standard) and crowdsourced video (experimental) intervention groups, respectively, d is 12 the non-inferiority limit, and $f(\alpha,\beta) = [\Phi^{-1} (1-\alpha) + \Phi^{-1} (1-\beta)]^2$ where Φ denotes the cumulative 13 distribution function of the standard normal distribution. More information on sample size 14 calculation can be found in Table 2.

 Table 2: Sample size for 90% power and one-sided 0.025 significance level

Probability of primary outcome in control group [*]	Probability of primary outcome in experimental group [*]	N evaluable per arm	Total sample size for RCT
0.50	0.50	526	1170
0.45	0.45	521	1158
0.40	0.40	505	1124
0.35	0.35	479	1066
0.30	0.30	442	984

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^{*}Based on the pilot study, 9 of 25 participants (95% confidence interval: 18% to 57%) had condomless sex at least once in the three-week period immediately following the video intervention. According to a similar RCT we conducted in 2014, the loss to follow up rate was about 10%; adjustment for loss to follow up required (N evaluable per arm)/(1-0.1) to be enrolled. A non-inferiority limit of 0.1 was used for all calculations. Randomization and allocation Participants will be randomly assigned to one of the two intervention videos using an electronic randomizer tool available through Qualtrics. Randomization will occur independently of any other data collected, with participants allocated in a 1:1 ratio to one of the two arms. Participants will not be informed of which video (crowdsourcing or social marketing) they are assigned to. **DATA ANALYSIS** Primary analysis The primary analysis will evaluate the non-inferiority hypothesis comparing the two interventions, as well as the superiority hypothesis. The difference in proportions having condomless sex (crowdsourced - social marketing) will be computed, with a corresponding two-sided 95% Wald confidence interval. The crowdsourced intervention will be declared non-inferior to social marketing if the upper confidence limit is below 10%. If the upper confidence limit is below 0%, then the crowdsourced intervention will be declared superior to social marketing. The recruitment methods, survey instrument, and video length will be the same between in the two study arms.

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Effect modification analysis

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Effect modification analyses will be under taken based on prior exposure to the condom
promotion video viewed by the participant to assess whether this exposure modified the effect of
video intervention arm upon the primary condom use outcome. A linear probability model will
be used to evaluate effect modification by testing for an interaction between intervention and
prior video watching.

Missing data plan

8 If the primary outcome is missing for <11% of participants, then the primary analysis will use a
9 complete-case approach. If the primary outcome is missing for 11 to <20% of participants, then
10 a sensitivity analysis using multiple imputation based on the PROC MI procedure in SAS (Cary,
11 NC) will also be used. If the primary outcome is missing for ≥20% of participants, then multiple
12 imputation will be used in the primary analysis.

14 Secondary analysis

15 Comparison will be made between the two trial arms with respect to each of the secondary 16 outcomes enumerated above and in Supplemental File 1. Non-inferiority comparisons will also 17 be made between study arms for the subset of individuals who reported sex during the follow-up 18 period (3 weeks and 3 months respectively) and causal inference methods will be employed to 19 account for post-randomization selection bias.

- - 21 ETHICS AND DISSEMINATION
 - *Ethical review*

IRB approval was obtained from the Guangdong Provincial Center for Skin Diseases and STI Control, University of North Carolina at Chapel Hill, and University of California San Francisco. Informed Consent All participants will be provided an online consent form immediately prior to survey commencement. This online informed consent describes personal data to be collected, explaining that data will be used for research purposes. Contact information is provided to participants to address further questions. Participants will be required to sign the consent and provide a mobile telephone number as agreement to proceed with the survey. Confidentiality Data will be collected through the Qualtrics survey tool (Provo, Utah). Data will be transmitted securely using SSL (TLS) 128 bit encryption across the Internet (HTTP) and located in a secured Qualtrics server in the United States. The server is configured with redundant hard drive array to ensure reliability. Access to the data will be password protected within the server's firewall. Survey responses will be kept separately from participants' email addresses; the two files will be linked with a non-descript, unique, randomly generated identifier. Participants will provide mobile telephone numbers, which will be kept separately from data containing answers to survey items. These telephone numbers will be accessible only to two researchers solely for the means of sending reminders, follow-up surveys and mobile top-up incentives.

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1 Dissemination

2 The results of this study will be prepared and submitted for publication in a peer-reviewed

- 3 journal. Study findings will also be shared through conference abstracts and presentations,
- 4 workshops, and to our partnering organizations.

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1 Guangzhou, China. The funding source had no role in the design of the study and will not have

2 any role during its execution, analyses, interpretation of data, or decision to submit results.

Competing Interests

None of the authors declare any conflicts of interest.

8 Ethics Approval

9 Ethical approval has been obtained from the ethical review boards of the Guangdong Provincial

- 10 Center for Skin Diseases and STI control, the University of North Carolina at Chapel Hill, and
- 11 the University of California at San Francisco.

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Secondary Outcome	Definition
Incremental cost	Incremental cost, defined as the cost associated with respective video interventions (development, start-up, implementation, condom use, intervention – see Table 2 for details) per individual who
Female condomless	reported no sex or sex with a condom during the follow-up period.
sex	Frequency of men, defined as number of men who reported condomless vaginal or anal sex with a woman divided by the total number of men who viewed the video in that arm.
Male condomless sex	Frequency of men, defined as number of men who reported condomless anal sex with a man divided by the total number of men who viewed the video in that arm
Post-video condomless sex	Frequency of men, defined as number of men who reported condomless vaginal or anal sex with any partner immediately following the video intervention divided by the total number of men who viewed the video in that arm
Frequency of sex acts	Frequency of men, defined as the number of men who had decreased total number of sex acts in the three weeks following the intervention compared to the three weeks immediately preceding the intervention in that arm
Condom use social norms	Frequency of men, defined as number of men who report higher levels of social norms when comparing their pre-intervention and post-intervention condom use norms*
Condom self-efficacy	Frequency of men, defined as number of men who had an increase in self-efficacy when comparing their pre-intervention and post- intervention self-efficacy**
Condom negotiation	Frequency of men, defined as the number of men who attempted to convince an unwilling partner to use a condom immediately following the video intervention divided by the total number of men who viewed the video in that arm
HIV testing	Frequency of men, defined as the number of men who reported being tested for HIV during the interval between watching the video and following up compared to the number of men who followed up
STI testing	Frequency of men, defined as the number of men who reported being tested for STIs (excluding HIV) during the interval between watching the video and following up compared to the number of men who followed up
Likert scale. Increased of baseline in any two of the	ms will be measured using six survey items that are each on a five po condom use social norms will be defined as having an increase from lese six survey items and dichotomized accordingly. The condom use Il be assessed in the entire group as well as the subgroup of men who

6 were referred by their friends.
7 **Self-efficacy will be measured

**Self-efficacy will be measured using seven survey items that are each on a five point Likert scale. Increased self-efficacy will be defined as having an increase from baseline in any two of

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these seven survey items and dichotomized accordingly. The self-efficacy outcome will be assessed in the entire group as well as the subgroup of men who were referred by their friends.

assessed in the entire group as well as the subgroup of men who were referred by their friends.

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2 3	1	Supplementary Files Online Survey
4	1 2	Supplementary File: Online Survey
5 6	3	Men's Heath Study (Final)
7	4	
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9	6	About this Study:
10 11	7	You are being asked to take part in a research study that will help us better understand sexual
12	8	behavior and condom use among men in China. Your participation in this project will allow us to
13		
14 15	9	develop better interventions to promote condom use and to improve sexual health among men
16	10	across China.
17 18	11	
19	12	What's Involved?
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22	14	If you participate in this study, you will be asked to complete an online questionnaire and a
23	15	subset of participants will be asked watch a one minute video. A subset of participants will also
24	16	be asked to complete up to two additional follow-up questionnaires. The questionnaires will ask
25 26	17	you to provide sociodemographic information and information about your sexual behaviors. In
27	18	order to ensure that your privacy is protected, all of your online responses will be encrypted and
28 29	19	securely transferred to our data servers.
30	20	Upon completion of this study and a 3-week follow up survey, you will receive 100 RMB credit
31 32	21	to your mobile phone. Eligible participants who also complete the follow-up questionnaires can
33 34	22	receive up to 150 RMB credit to their mobile phone.
34 35	23	If you have any questions about the research or your participation in the study, feel free to
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2 3 4 5	1 2	A. Basic Information (Eligibility Survey) (Q1-5)
6 7	3	A1. Were you born biologically male or female?
8 9 10	4 5	 O Male O Female (Not eligible to take this survey – Skip to End of Survey)
11 12 13	6 7	A2. What is your date of birth?
14 15 16 17	8 9 10	 ○ <u>dd.mm.yyy</u> (<i>Calendar input</i>) (Not eligible to take this survey if year is greater than Launch day + 1999 or < 16 y/o − Skip to End of Survey)
18 19	11	A3. In your lifetime have you ever had anal sex with another man?
20 21 22 23	12 13 14	 Yes No (Not eligible to take this survey – Skip to End of Survey)
24 25 26	15 16	A4. In the last three months, did you have any anal and /or vaginal sex without a condom with any sex partner?
27 28 29 30	17 18 19	 Yes No (Not eligible to take this survey – Skip to End of Survey)
31 32 33 34	20 21 22	A5. Will you agree to provide us your Chinese mobile phone number? (Answering this question is required to participate in the survey and to receive your reward for participating. We will not distribute your number to any agency or individual. Thank you for your cooperation.)
35 36	23	• Agree
37 38 39	24 25	 Decline (Not eligible to take this survey – Skip to End of Survey)
40	26	Which carrier are you using right now?
41 42	27 28	O China MobileO China Unicom
43 44	28 29	• China Unicom • China Telecom
44 45 46 47 48 49 50 51 52 53 54 55 57 58 59 60	29 30 31	 China Unicom China Telecom

1		
2 3	1	Online Consent Form
4	T	<u>Onnie Consent i orm</u>
5 6 7	2	Title of Study: Men's Health Study
8	3	IRB study number: <u>15-1522</u>
9	4	Principal Investigator: <u>Dr. Joseph Tucker</u>
10	5	Dr. Joseph D. Tucker, UNC Project-China, Number 2 Lujing Road, Guangzhou, China,
11 12	6	
13	7	
14	8	What are some general things you should know about research studies? You are being asked
15	9	to participate in a research study. To join this research study is voluntary. You may for whatever
16	10	reason refuse to join or withdraw your consent to be in the study at any time, without penalty.
17	10	Details about this study are discussed below. It is important that you understand this information
18		
19	12	so that you can make an informed choice about joining this research study.
20 21	13	
22	14	What is the purpose of this study? Innovative approaches to condom promotion campaigns are
23	15	urgently needed. The current strategy to developing many of these campaigns is to repackage old
24	16	ideas rather than create new ones. The purpose of this research study is to understand how
25	17	crowdsourcing can be used to leverage both the high Internet use and willingness to participate
26	18	in online forums of young MSM (men who have sex with men) to transform the design and
27	19	implementation of condom promotion campaigns. Crowdsourcing is the process of taking a task
28	20	traditionally performed by a single individual or organization, and instead outsourcing the task to
29 30	21	a large group to complete in the form of a contest or open call, often enabled by the Internet.
31	22	
32	23	How many people will take part in this study? If you decide to participate in this research
33	24	study, you will be one of approximately 1170 individuals recruited across China.
34	25	
35	26	What will happen if you take part in the study? Your part in this research study will last
36	27	approximately 20 minutes. During this study, you will be asked to first complete an online
37 38	28	questionnaire, and depending on your responses, you may be asked to watch a one minute video
39	29	afterwards. Upon completion of this initial questionnaire, you will be asked to input your mobile
40	30	phone number as a means for the research team to prevent duplicate responses, to send
41	31	reminders, and to distribute rewards for participation. Additionally, some participant will be
42	32	asked to complete up to two additional follow-up questionnaires after three-week and twelve-
43	33	week's times. If you do not respond to the initial follow-up request, you will receive a message
44	34	reminder. To do this, we will also ask you to provide your QQ number. The study questionnaires
45 46	34	will ask you to provide sociodemographic information as well as details about your sexual health
40 47		
48	36	and sexual activity.
49	37	
50	38	What are the possible benefits from being in this study? Research is designed to benefit
51	39	society by gaining new knowledge. The proposed study will make important contributions to the
52	40	sexual health literature. The field of condom interventions among young MSM in resource-
53 54	41	limited settings is in its infancy. The results from this study will help the research team develop a
54 55	42	MSM targeted, community-level intervention that will be fielded and evaluated in the Chinese
56	43	setting. Your participation will also help design better interventions to promote condom use
57	44	among MSM in China.
58		
59		
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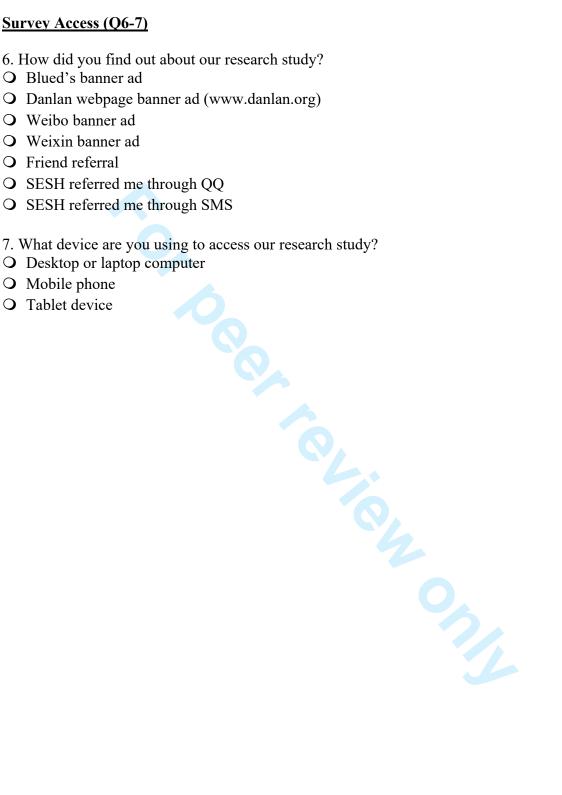
What are the possible risks or discomforts involved from being in this study? We will ask participants to provide sensitive information about their sexual partners and practices. Participants may feel embarrassed, anxious, or otherwise distressed by providing information of such a personal nature. Participants may also experience fatigue in response to the proposed evaluations (e.g. from looking at a computer screen). Some participants might fear that refusal to participate in the study might jeopardize their sexual orientation identity – especially if the participant has not come "out" to him or herself and/or the community). Other participants may fear that the research staff might "out" them or discuss their private details with other (MSM and non-MSM) members in their community. While the risk is minimal, there is still the possibility for breaches of confidentiality. How will your privacy be protected? All data are directly entered into computers as participants complete the questionnaires. Programs to ensure accuracy, completeness, and internal consistency are automated. Data can be readily downloaded and converted to the format of commercially available statistical software. During collection of the online portion of the study, all data will be transmitted securely using SSL (TLS) 128 bit encryption across the Internet (HTTP). SSL providers users with the assurance of access to a valid, "non-spoofed" site, and prevents data interception or tampering with sensitive information. The SSL certificate that will be used for this project will use 128-bit encryption, the preferred security level of government and financial institutions. 128-bit encryption offers protection that is virtually unbreakable. For example, if a hacker could crack a standard 40-bit SSL session in a day, it is estimated that it would take well beyond a trillion years to accomplish the same thing against a 128-bit SSL session. A dedicated server, which eliminates security issues involved with shared hosting environments where hundreds of websites and users reside on one shared web server as well as ensuring both physical and network security, will be used to house the data. Data will be located in a secured server at UNC Chapel Hill. The server will be configured with redundant hard drive array to ensure reliability. Access to the data will be password protected within the server's firewall. Survey responses will be kept separately from participants' email addresses; the two files will be linked with a non-descript, unique, randomly generally identifier. Only the PI and a designated senior staff member will have the password to access to the "key" that links the nondescript identifier to personally identifiable information. Cookies will not be used in any way to track participant activity. What if you want to stop before your part in the study is complete? If at any point in the study you do not want to answer a question or no longer want to participate, you can stop and withdraw from this study without penalty. The investigators also have the right to stop your participation if you have an unexpected reaction, have failed to follow instructions, etc. Will you receive anything for being in this study? Will it cost anything? Participants who are asked to watch a one-minute video will have the opportunity to earn up to 150 RMB credit on their mobile phone – this credit will be distributed as two separate 100 and 50 RMB mobile phone recharges. Participants will receive a 100 RMB phone recharge upon

completion of the first questionnaire and 3-week follow up survey, and 50 RMB for the 3-month follow up survey if that they are eligible for. There are no costs associated with

participating in this research study.

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3 4	1	
4 5	2	What if you have questions about this study? If you have any questions, complaints, or
6	3	concerns about the research or your participation in the study, feel free to contact
7	U	concerns accut the research of your participation in the staay, reef nee to contact
8	4	
9	5	What if you have questions about your rights as a research participant? All research on
10	6	human volunteers is reviewed by a committee that works to protect your rights and welfare. If
11	7	you have questions or concerns, or if you would like to obtain information or offer input, please
12 13	8	contact the UNC Institutional Review Board at 1-919-966-3113 or by email to
13 14	9	IRB_subjects@unc.edu. You may also contact the Guangdong Provincial Skin Diseases & STI
15		
16	10	Control Center IRB at 020-83027652 or by email to sesh@seshglobal.org.
17	11	
18	12	
19	13	If you understand and agree to participate in this research study, please select "Agree" from the
20	14	options below. We thank you for your participation!
21 22	15	O Agree
23	16	 Decline (Skip to End of Survey)
24	17	
25	18	
26	19	
27	17	
28		
29 30		
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48 49 50 51 52 53 54 55 56 57 58 59 60	



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2 3	1	A Sociadamagnaphiag (09.15)
4	1 2	<u>A. Sociodemographics (Q8-15)</u> The next set of questions will ask you to provide some information about yourself.
5 6	3	The next set of questions will ask you to provide some information about yourself.
7	4	A6. What province or province-level city do you currently live in?
8 9	5	O Beijing
10	6	O Tianjin
11 12	7	O Hebei
13	8	O Shanxi
14	9	O Inner Mongolia
15 16	10	• Liaoning
17	11	-
18	12	• Heilong Jiang
19 20	13	O Shanghai
20 21	14	O Jiangsu
22	15	O Zhejiang
23 24	16	O Anhui
24 25	17	O Fujian
26	18	O Jiangxi
27 28	10 19	 Jilin Heilong Jiang Shanghai Jiangsu Zhejiang Anhui Fujian Jiangxi Shandong
29	20	O Henan
30	20	 Fujian Jiangxi Shandong Henan Hubei Hunan Guangdong Guangxi Hainan Chongqing Sichuan
31 32	22	O Hunan
33	23	O Guangdong
34	24	O Guangxi
35 36	25	O Hainan
37	26	• Chongqing
38	27	O Sichuan
39 40	28	
41	20 29	 Guizhou Yun An Xizang (Tibet) Shaanxi Gansu
42 43	30	• Yun Yun • Xizang (Tibet)
43	31	O Shaanxi
45	32	O Gansu
46 47	33	O Qinghai
48	34	O Ningxia
49	35	O Xinjiang
50 51	35 36	
52		O Hong Kong
53	37 20	O Aomen
54 55	38 20	A7 What site do you summative live in 2 (Tart inset) (Do not display if a second di
55 56	39	A7. What city do you currently live in? (<i>Text input</i>) (Do not display if answered
57 58	40	北京,上海,重庆,天津,香港,澳门 to A6)

1 2		
3	1	
4 5		
6	2 3	A8. What is your current legal marital status (referring to women)?O Not married
7	3 4	• Not married • Engaged or Married
8 9		
10	5	• Separated or Divorced
11	6	• Widowed
12 13	7	
14	8 9	A9. Are you currently enrolled as either a full-time or part-time student?
15		O Yes
16 17	10	O No
18	11	
19	12	A10. What is the highest level of education that you have completed ?
20	13	• High school or below (including Zhongzhuan)
21 22	14	O Some college (Dazhuan)
23	15	O College/Bachelors
24	16	O Masters/PhD
25 26	17	
27	18	A11. What is your total <u>individual</u> monthly income from all sources?
28	19	O Less than 1500 RMB
29 30	20	O Between 1500 and 3000 RMB
30 31	21	O Between 3001 and 5000 RMB
32	22	O Between 5001 and 8000 RMB
33	23	• Greater than 8000 RMB
34 35	24	
36	25	A12. What do you primarily consider yourself to be?
37	26	O Gay
38 39	27	O Bisexual
40	28	O Straight/Heterosexual
41	29	O Transgender
42 43	30	O Unsure/Other
44	31	
45	32	A13. Have you spoken with a physician or other health professional (e.g. HIV testing counselor,
46 47	33	pharmacist) about your sexuality or sexual history with men?
47	34	O Yes
49	35	O No
50	36	
51 52	37	B. MSM Basic Situation (Q16-38)
53	38	<i>The next set of questions will ask you about your sexual behaviors with other men.</i>
54	39	
55 56		
57		
58		
59 60		
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2 3 4	commitment to. A "casual partner" is someone who you have sex with and do not have an emotional commitment to.
5 6	B1. How old were you during your first insertive sexual encounter?
7	years old (Number input)
8 9	B2. Was your first insertive sexual encounter with a male or female?
0	• Male (Skip to B4)
1	O Female
2 3	• Other
1	B3. How old were you when you had sex with another man for the first time?
5	years old (Number input)
7	B4. Were you insertive (1) or receptive (0) during your first sexual encounter with another man?
3	O Insertive (1)
9	O Receptive (0)
0 1	• Both insertive (1) and receptive (0)
2	B5. Did you use a condom during your first sexual encounter with another man?
3	O Yes
4 5	O No
6 7	B6. In general, where do you usually go to meet your sex partners (Select all that apply)? O Pub, disco, tearoom, or club
8	• Spa or bath house, sauna, foot or body massage parlor
9	• Park, public restroom, public lawn
0	O Internet
1	O Other
2 3	B7. In the last three months, approximately how many male sex partners have you had?
4 5	male sex partners (Number input) (If answer <1, skip to end of section)
6	B8. Of the men you have had sex with in the last three months, would you consider one of them
7	to be a primary sex partner?

2		
3	1	O Yes
4 5	2	• No (Skip to B16)
6	3	
7	4	B9. In the last three months, approximately how many times per week did you have anal sex
8 9	5	with your primary partner?
10	6	sex encounters per week
11	7	
12	8	B10. How long have you and your primary sex partner been in a relationship?
13 14	9	• C Less than three months
15		
16	10	• Between three and six months
17 18	11	• Between six and twelve months
19	12	• Between one and two years
20	13	• More than two years
21	14	
22 23	15	B11. In the last three months, when you had anal sex with your primary partner, what role did
23	16	you assume?
25	17	• Always insertive (always 1) (Do not display B15)
26		
27 28	18	• Mostly insertive (mostly 1)
29	19	• Both insertive and receptive in similar amounts (Both 1 and 0 in similar amounts)
30	20	• Mostly receptive (mostly 0)
31	21	• Always receptive (always 0) (Do not display B14)
32 33	22	• No anal sex, only oral sex (Neither 1 nor 0) (Do not display B14 and B15)
34	23	
35	24	B12. In the last three months, when you had sex with your primary partner, how frequently did
36 37	25	you or your partner use condoms? (Do not display if "No anal sex, only oral sex" to B11)
38		
39	26	O Never used (Skip to B14)
40	27	O Sometimes used
41 42	28	O Mostly used
43	29	• Always used (Do not display B14, B15)
44	30	
45 46	31	B13. In the last three months, when you had sex with your primary partner did a condom ever
47	32	slip off, tear, or otherwise fail?
48	33	O Yes
49 50	34	O No
50 51	35	
52	36	B14. When you are insertive, the reason(s) you do not use a condom with your primary partner
53	30 37	include (select all that apply):
54 55	57	include (select an that apply).
55 56	38	• I do not want to use one (e.g. personal preference, uncomfortable)
57	39	• Neither of us has a condom
58 50		
59 60		

1		
2 3	1	• My partner does not want me to use one
4 5	2	• The condom is of poor quality
6	3	• I do not have time to use one
7 8	4	• I believe that my partner is loyal to me
9	5	• I am loyal to my partner
10	6	• I am drunk or high
11 12	7	• I am HIV negative or I do not believe I am infected with HIV
13	8	• My partner is HIV negative or I do not believe he is infected with HIV
14 15	9	• Other
16	10	
17 18	11	B15. When you are receptive, the reason(s) your primary partner does not use a condom with
19	12	you include (select all that apply):
20 21	13	• He does not want to use one (e.g. personal preference, uncomfortable)
22	14	• Neither of us has a condom
23 24	15	• I do not want him to use one
25	16	• The condom is of poor quality
26 27	17	• He does not have time to use one
28	18	• I believe that my partner is loyal to me
29	19	• He believes that I am loyal to him
30 31	20	• He is drunk or high
32	21	• He is HIV negative or does not believe he is infected with HIV
33 34	22	• I am HIV negative or does not believe I am infected with HIV
35	23	• Other
36	24	
37 38	25	B16. In the last three months, have you had sex with another man who was not your primary
39	26	partner?
40 41	27	O Yes
42	28	• No (Skip to B23, Should not say "No" to B8 and B16)
43 44	29	
45	30	B17. In the last three months, approximately how many times per week did you have anal sex
46	31	(all casual sex partners combined)?
47 48	32	sex encounters per week
49	33	
50 51	34	B18. In the last three months, when you had anal sex with a casual partner, what role did you
52	35	assume?
53 54	36	• Always insertive (always 1) (Do not display B22)
55	37	 Mostly insertive (mostly 1)
56 57	38	 O Both insertive and receptive in similar amounts (Both 1 and 0 in similar amounts)
57 58 59 60	50	- Dom inservice and receptive in similar amounts (Dom 1 and 0 in similar amounts)
00		For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

2		
3 4	1	• Mostly receptive (mostly 0)
4 5	2	• Always receptive (always 0) (Do not display B21)
6	3	• No anal sex, only oral sex (Neither 1 nor 0) (Do not display B21 and B22)
7 8	4	
9 10	5	B19. In the last three months, when you had sex with a casual partner, how frequently did you or
11 12	6	your partner use condoms? (Do not display if B17 is "0" or B18 is "无肛交,只有口交(既不
13 14	7	是1也不是0)")
15	8	• Never used (Skip to B21)
16 17	9	• Sometimes used
18	10	O Mostly used
19	11	• Always used (Do not display B21, B22)
20 21	12	
22 23 24 25	13 14 15	B20. In the last three months, when you had sex with a casual partner did a condom ever slip off, tear, or otherwise fail? (Do not display if answer to B19 is "Never used") • • • • • • • • • • • • • • • • • • •
26 27	16	O No
28	17	
29	18	B21. When you are insertive, the reason(s) you do not use a condom with a casual partner
30 31	19	include (select all that apply):
32	20	• I do not want to use one (e.g. personal preference, uncomfortable)
33	20 21	• Nuclear of us has a condom
34 35	21	• My partner does not want me to use one
36	22	
37		• The condom is of poor quality
38 39	24 25	• I do not have time to use one
39 40	25	• I am drunk or high
41	26	• I am HIV negative or I do not believe I am infected with HIV
42 43	27	• My partner is HIV negative or I do not believe he is infected with HIV
43 44	28	• Other
45	29	
46 47	30	B22. When you are receptive, the reason(s) your casual partner does not use a condom with you
48	31	include (select all that apply):
49	32	\bigcirc He does not want to use one (e.g. personal preference, uncomfortable)
50 51	32 33	O He does not want to use one (e.g. personal preference, uncomfortable)O Neither of us has a condom
52		
53	34 25	• I do not want him to use one
54 55	35	• The condom is of poor quality
55 56	36	• He does not have time to use one
57 58	37	• He is drunk or high

1 2		
3	1	• He is HIV negative or he does not believe he is infected with HIV
4	2	• I am HIV negative or he does not believe I am infected with HIV
5 6	2	
7		O Other
8	4	
9	5	B23. In the last month, did you have any anal sex without a condom with any male partner? (Do
10	6	not display if answer "1" to B7 and "Always" to B19)
11 12	7	O Yes
13	8	O No
14	9	
15	,	
16	10	C. Heterosexual Sex Situation (Q39-54)
17 18	11	The next set of questions will ask about your sexual behaviors with women.
19	12	
20	13	A "primary female partner" is someone who you have sex with regularly, have an emotional
21	14	commitment to, and/or have married or engaged to be married. A "casual female partner" is
22	15	someone who you have had sex with but do not have an emotional commitment to.
23	16	
24 25	17	C1. Have you ever had vaginal, anal, and/or oral sex with a female partner?
26	18	O Yes
27		
28	19	• No (Skip to End of Section)
29	20	
30 31	21	C2. In the last six months, did you have any vaginal and/or anal sex with a female partner?
32	22	O Yes
33	23	• No (Skip to End of Section)
34	24	
35 36	25	
30 37	25	C3. In the last six months, approximately how many female sex partners have you had?
38	26	female sex partners (Number input) (If answer <1 then skip to End of Section)
39	27	
40	27	
41 42	28	C4. In the last six months, have you had a primary female sex partner?
42 43	29	O Yes
44	30	• No (Skip to C9)
45	31	
46	32	C5. In the last six months, approximately how many times per week did you have vaginal and/or
47 48	33	anal sex with your primary female partner?
40 49	34	sex encounters per week
50	35	sex encounters per week
51	35	
52	36	C6. In the last six months, when you had sex with your primary female partner, how frequently
53 54	37	did you or your partner use condoms?
55		
56	38	• Never used (Skip to C8)
57	39	O Sometimes used
58		
59 60		
50		

2	
$\frac{3}{4}$ 1 O Mostly used	
4 2 O Always used (Do not display C8)	
6 3	
7	
8 4 C7. In the last six months, when you had sex with your primary female partn	er did a condom
9 5 ever slip off, tear, or otherwise fail? 10 6 O Vas	
12 7 O No	
13 8	
14 15 9 C8. The reason(s) you do not use a condom with your primary female partne	r include (select all
16 10 that apply):	i mendde (sereet an
17 ¹⁰ that apply).	
18 11 O I do not want to use one (e.g. personal preference, uncomfortable)	
19 12 O Neither of us has a condom	
21 13 O My partner does not want me to use one	
$\frac{22}{22}$ 14 O The condom is of poor quality	
 ²³/₂₄ ¹⁵ O I do not have time to use one 	
25 16 O I believe that my partner is loyal to me	
²⁶ 17 Q Lam loval to my partner	
 27 17 C Full to high particle 28 18 O I am drunk or high 	
 29 19 O I am HIV negative or I do not believe I am infected with HIV 	
 20 O My partner is HIV negative or I do not believe she is infected with HIV 	
32 21 O Other 33 22	
34	
35 23 C9. In the last six months, have you had sex with another woman who was n	ot your primary
36 37 24 partner?	
37 38 25 O Yes	
$\frac{23}{39} = \frac{25}{30} = \frac{25}{100} = \frac{25}$	hould not onervon
$\frac{36}{40}$ 26 O No (Skip to End of Section if "Always" to C6; otherwise Skip to C14 – S	nould not answer
41 27 "No" to C4 and C9) 42 29	
43 40	
29 C10. In the last six months, approximately how many times per week did you	1 have vaginal
45 30 and/or anal sex (all casual sex partners combined)?	
40 31 sex encounters per week	
48 32	
$_{50}^{49}$ 33 C11. In the last six months, when you had sex with a casual female partner, h	now frequently did
50 33 C11. In the last six months, when you had sex with a casual female partner, f 51 34 you or your partner use condoms?	low nequently and
52 54 you of your partner use condoms:	
53 35 O Never used (Skip to C13)	
54 36 O Sometimes used	
55 56 37 O Mostly used	
57 38 O Always used (Do not display C13; Skip to End of Section if "Always" to	C6)
57 38 O Always used (Do not display C13; Skip to End of Section if "Always" to 58 59	C6)

1 2		
2 3	1	
4	T	
5 6	2	C12. In the last six months, when you had sex with a casual female partner did a condom ever
7	3	slip off, tear, or otherwise fail?
8	4	O Yes
9	5	O No
10	6	
11 12	7	C13. The reason(s) you do not use a condom with a casual female partner include (select all that
13	8	apply):
14	0	appry).
15	9	• I do not want to use one (e.g. personal preference, uncomfortable)
16	10	• Neither of us has a condom
17 18	11	• My partner does not want me to use one
19	12	• The condom is of poor quality
20	13	• I do not have time to use one
21	14	• I am drunk or high
22 23	15	
24		• I am HIV negative or I do not believe I am infected with HIV
25	16	• My partner is HIV negative or I do not believe she is infected with HIV
26	17	• Other
27 28	18	
29	19	
30	20	C14. In the last month, did you have sex without a condom with any female partner? (Do not
31	21	display if answer "1" to B7 and "Always" to B19)
32 33	22	
33 34	23	O Yes
35	24	O No
36	24 25	
37		
38 39	26	
40	27	D. Sexual Behavior (Q55-63)
41	28	The next set of questions will ask about any "risky" sexual behaviors that you may or may not
42	29	have engaged in with other men and/or women.
43 44	30	
45	31	D1. In the last three months, did you ever have sex while you were drunk (from drinking
46		
47	32	alcohol)?
48 49	33	O Yes
50	34	O No
51	35	
52		
53 54	36	D2. In the last three months, was you partner ever drunk (from drinking alcohol) while you had
55	37	sex?
56		
57		
58 59		
60		

2 3		
4	1	O Yes
5	2	• No (Skip to D4 if "No" for D1 and D2)
6 7	3	
8	4	D3. In the last three months, how often did you have sex while you and/or your partner was
9 10	5	drunk?
11	6	O Never
12	7	O Rarely
13 14	8	• Occasionally/Sometimes
15	9	O Very often
16 17	10	O Always
18	11	
19 20	12	D4. In the last twelve months, did you ever use "meth" before or during sex?
21		
22 23	13	O Yes
23 24	14 15	O No
25	15	
26 27	16	D5. In the last twelve months, did you ever participate in group sex with other men?
28	17	• Yes (Display D6)
29 30	18	O No
31	19	
32 33	20	D6. During your most recent group sex experience, did you have any anal sex without a
34	21	condom?
35 36	22	O Yes
37	23	O No
38	24	
39 40	25	D7. In the last twelve months, were you ever paid (with money or gifts) to have sex?
41	26	O Yes
42 43	27	• No (Skip to D9)
44	28	
45 46	29	D8. In the last twelve months, has your main source of income come from having sex with
47	30	customers?
48 49		
4 5 50	31	O Yes
51	32	O No
52 53	33	
54	34 25	D9. In the last twelve months, have you ever paid (with money or gifts) a man to have sex?
55 56	35	O Yes
56 57	36	O No
58	37	
59 60		
-		For near review only - http://bmionen.hmi.com/site/about/quidelines.yhtml

2		
3 4	1	E. Sex Tourism (Q64-79)
5	2	The next set of questions will ask about leaving your city and/or China to purchase sex.
6 7	3	<i>3, 1</i> , <i>1</i>
8	4	E1. Have you ever purchased sex (with money or gifts) while traveling outside of your city of
9	5	residence?
10 11	6	O Yes
12	7	• No (If "No" skip to End of block)
13	8	
14 15	9	E2. Have you ever traveled outside of your city of residence with the primary purpose of
16	10	purchasing sex?
17	11	O Yes
18 19	12	O No
20	13	
21	14	E3. When you traveled to purchase sex, did you travel within China or leave the country?
22 23	15	• Within China (Display E4a)
24	16	• Outside China (Display E4b)
25	17	O Both (Display E4a and E4b)
26 27	18	
28	19	E4a. Which city/cities in China did you travel to when you purchased sex? (Text
29 30	20	Input)
30 31	21	
32	22	E4b. Which country/countries and cities did you travel to when you purchased sex?(Text
33 34	23	Input)
35	24	
36	25	E5. How did you arrive at your destination?
37 38	26	O Car
39	27	O Train
40	28	O Airplane
41 42	29	O Ship
43	30	
44 45	31	E6. Why did you decide to purchase sex while traveling?
46	32	• I was afraid of seeing someone I know in my hometown
47	33	• Sex is less expensive at the location I traveled to
48 49	34	• There was less likelihood that I would have to use a condom if I purchase sex
5 0	35	• I am unable to purchase sex in my hometown
51	36	• I wanted to try sexual intercourse with another gender
52 53	37	• I was drunk or using drugs, I did not plan it
54	38	
55	39	E7. When you purchased sex while outside your city of residence, who did you purchase sex
56 57	40	from (select all that apply)?
58		
59 60		
00		

1 2		
3	1	O Men
4	2	O Women
5 6	2	O Transgender
7	4	
8 9	5	E8a. When you purchased sex while outside your city of residence, have you ever had any
10	6	vaginal sex without a condom? (Display if "Women" or "TG" for E7)
11	7	• Yes (Display E17)
12 13	8	O No
14	9	
15 16	10	E8b. When you purchased sex while outside your city of residence, have you ever had any anal
17	11	sex without a condom?
18	12	• Yes (Display E17)
19 20	13	O No
21	14	
22 23	15	
24	16	E9. Once you were at your travel destination (during your most recent trip abroad), how did you
25	17	find someone to purchase sex from (select all that apply)?
26 27	18	• Mobile app portal
28	19	• Online (not an app) portal
29 30	20	• In-person proposition
31	21	O Local establishment
32	22	
33 34	23	E10. During your most recent experience when you purchased sex while abroad, approximately
35	24	how many sex partners did you purchase? (Please enter "0" partners if no partners of the
36 37	25	following type)
38	26	male sex partners (Number input)
39 40	27	female sex partners (Number input)
41	28	transgender sex partners (Number input)
42	29	
43 44	30	E11. During your most recent experience when you purchased sex while traveling,
45	31	approximately how much did you pay (RMB) for your last sex encounter?
46 47	32	(Text Input)
48	33	
49	34	E12. During your most recent experience when you purchased sex while traveling, of what
50 51	35	nationality was your last partner?
52	36	(Text Input)
53 54	37	
54 55	38	
56		
57 58		

1 2		
3	1	E13. During your most recent experience when you purchased sex while traveling, the reason(s)
4 5	2	you did not use a condom include (select all that apply):
6 7	3	• I did not want to use one (e.g. personal preference, uncomfortable)
8	4	O I did not want my partner to use one
9	5	• Neither of us had a condom
10 11	6	• My partner did not want to use one (e.g. personal preference, uncomfortable)
12	7	• My partner did not want me to use one
13	8	• The condom was of poor quality
14 15	9	• I did not have time to use one
16	10	• My partner did not have time to use one
17	11	• I was drunk or high
18 19	12	• My partner was drunk or high
20	13	• I am HIV negative or I do not believe I am infected with HIV
21	14	• My partner was HIV negative or I do not believe my partner was infected with HIV
22 23	15	• Wy parallel was first negative of I do not beneve my parallel was infected with first
24	16	E14. How strongly do you agree with the following statement: During my most recent
25	10	experience purchasing sex while traveling, I behaved with less caution than I normally would
26 27	17	while at home
28	10 19	O Strongly yes
29	20	• Strongry yes • Yes
30 31	20 21	
32	21	O The sameO No
33		O No O Strangely No
34 35	23	• Strongly No
36	24 25	 Strongly yes Yes The same No Strongly No E15. Did you travel alone or with others? Alone With others
37	25	E15. Did you travel alone or with others?
38 39	26	O Alone
40	27	• With others
41	28	
42 43	29	E16. During your most recent experience when you purchased sex while traveling, did you ask
44	30	your partner about his/her HIV status before having sex?
45	31	O Yes
46 47	32	O No
48	33	
49 50	34	
50 51	35	<u>F. Condom Behavior (Q80-96)</u>
52	36 37	The next set of questions will ask about your practices and attitudes in regards to condom use.
53 54	38	F1. In the last three months, how often did you carry a condom with you when there was the
55	39	possibility you may have sex later?
56 57		
58		
59 60		
60		

1 2		
3	1	O Always
4 5	2	O Sometimes
6	3	• Hardly ever
7	4	O Never
8 9		
10	5	E2 If you not do do not down where is the first place you would go to find and?
11	6 7	F2. If you needed a condom, where is the first place you would go to find one?O Pharmacy or drugstore
12 13	8	• Supermarket
14	9	O Health clinic
15	10	O Community event
16 17	10	• Community event • Restroom vending machine
18	12	• Restroom vending machine • Friend
19	12	O Partner
20 21	13 14	• Pattier • Other
22	14	O Other
23 24	15 16	F3. If I had sex and told my friends that I did not use a condom, they would be angry or
24 25		
26	17	disappointed.
27	18 10	O Strongly agree
28 29	19 20	O Agree
30	20	O Neutral
31 32	21	O Disagree
32 33	22	• Strongly disagree
34	23	
35 26	24	F4. My friends talk a lot about "safer" sex.
36 37	25	O Strongly agree
38	26	O Agree
39 40	27	O Neutral
40 41	28	O Disagree
42	29	• Strongly disagree
43 44	30	
44	31	F5. My friends and I encourage each other before dates to practice "safer" sex.
46	32	O Strongly agree
47 48	33	O Agree
40 49	34	O Neutral
50	35	O Disagree
51 52	36	• Strongly disagree
52 53	37	
54	38	F6. If I thought that one of my friends had sex on a date, I would ask them if they used a
55 56	39	condom.
56 57	40	O Strongly agree
58		
59 60		

1 2		
3	1	O Agree
4	2	O Neutral
5 6		
0 7	3	O Disagree
8	4	• Strongly disagree
9	5	
10 11	6	F7. If a friend knew that I might have sex on a date, he/she would ask me if I was carrying a
12	7	condom.
13	8	O Strongly agree
14 15	9	O Agree
16	10	O Neutral
17	11	O Disagree
18 19	12	O Strongly disagree
20	13	
21	14	F8. When I think that one of my friends might have sex on a date, I would ask him/her if he/she
22	15	was carrying a condom.
23 24	16	O Strongly agree
25	17	O Agree
26	18	• Neutral
27 28	19	O Disagree
29	20	• Strongly disagree
30	21	
31 32	22	F9. If I might have sex on a date and I do not have a condom, I would make an effort to go out of
33	23	my way and get one.
34 35	24	O Strongly agree
36	25	O Agree
37	26	O Neutral
38 39	27	O Disagree
40	28	• Strongly disagree
41	29	
42 43	30	F10. I would feel comfortable discussing condom use with a potential partner before we engaged
44	31	in sex.
45	32	• Strongly agree
46 47	33	• Sublight direct
48	33 34	O Neutral
49	35	O Disagree
50 51	36	• Strongly disagree
52	30 37	Strongry disagree
53	37	F11. I would feel comfortable letting a primary partner know that I want to have sex with a
54 55	30 39	
56	39 40	Condom. O Strongly agree
57 58	70	• Subligity agree
59 60		
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2		
3	1	O Agree
4 5	2	O Neutral
6	3	O Disagree
7	4	• Strongly disagree
8 9	5	
10	6	F12. I would feel comfortable letting a casual partner know that I want to have sex with a
11	7	condom.
12 13	8	• Strongly agree
14	9	• Strongry agree • Agree
15	10	O Neutral
16 17		
17 18	11	O Disagree
19	12	• Strongly disagree
20	13	
21 22	14	F13. I feel confident that I could refuse to have sex with a partner who did not want you to use a
23	15	condom.
24	16	• Strongly agree
25 26	17	O Agree
27	18	O Neutral
28	19	O Disagree
29	20	• Strongly disagree
30 31	21	
32	22	F14. I feel confident in my ability to incorporate putting a condom on myself or my partner into
33	23	foreplay.
34 35	24	• Strongly agree
36	25	O Agree
37	26	O Neutral
38 39	27	O Disagree
40	28	O Strongly disagree
41	29	
42 43		
44	30	F15. I feel confident that I could use a condom with a partner without "breaking the mood."
45	31	O Strongly agree
46 47	32	O Agree
48	33	O Neutral
49	34	O Disagree
50 51	35	• Strongly disagree
52	36	F16. In the last three months, did you ever try to convince a partner who did not want to use a
53	37	condom to use one before having sex?
54	38	• Yes, and I was successful
55 56	39	• Yes, but I was unsuccessful
57	40	O No
58		
59 60		

1		
2 3		
4	1	
5	2	F17. In the last three months, did your partner every try to convince you to use a condom when
6	3	you did not want to use one before having sex?
7 8	4	O Yes, and he was successful
9	5	• Yes, but he was unsuccessful
10	6	O No
11	7	
12 13	/	
14	8	
15	9	G. HIV/STI Testing (Q97-132)
16 17	10	<i>The next set of questions will ask about your HIV and STI testing and results. Self-testing refers</i>
18	10	to you administering the test yourself and interpreting results.
19		to you duministering the test yourself and therpreting results.
20	12	
21 22	13	G1. Have you ever been tested for HIV?
23	14	O Yes
24	15	• No (Skip to G25)
25	16	
26 27	17	G2. Have you ever given or received an HIV self-test?
28	18	O Yes
29	19	O No
30 31	20	
32	20	G3. Have you ever self-tested for HIV?
33	22	• Yes
34 25		
35 36	23	• No (Skip to G20) (Do not show G35)
37	24	
38	25	G4. Did someone else force you to take an HIV self-test?
39 40	26	O Yes
40	27	O No
42	28	
43	29	G5. Who was with you when you self-tested? (Can select multiple)O No one, I was alone
44 45	30	• No one, I was alone
46	31	O Partner
47	32	O Friend
48 49	33	
49 50	34	G6. Was your HIV self-test the first time you ever tested for HIV?
51	35	O Yes
52	36	O No
53 54	30 37	
55	37	G7. What happened to your HIV testing frequency after you first used a self-test?
56	20	O7. What happened to your fir v testing frequency after you first used a sen-test?
57 58		
58 59		
60		

2		
3 ⊿	1	O Increased
4 5	2	O Decreased
6	3	O No change
7 8	4	
o 9	5	G8. Have you ever received a positive result with HIV self-testing?
10	6	O Yes
11 12	7	• No (Skip to G11)
13	8	
14	9	
15 16	10	G9. Has using an HIV self-test caused you subsequent suicidal feelings?
17	11	O Yes
18	12	O No
19 20	13	
20 21	14	G10. Has using an HIV self-test led to a violent confrontation (physically hitting)?
22	15	O Yes
23 24	16	O No
24 25	10	
26	18	The next set of 4 questions will ask you to recall experiences specific to self-testing.
27 28	10 19	The next set of 4 questions will ask you to recall experiences specific to self-testing.
20 29	20	G11. Has using an HIV self-test has increased your desire to seek follow-up care, as opposed to
30	20 21	other forms of HIV testing?
31 32	21	O Yes
33	22	O No
34	23 24	
35 36	24 25	G12. Self-testing for HIV gives me a sense of empowerment by allowing me to choose when I
37		
38	26	test.
39 40	27	O Strongly Agree
40 41	28	O Agree
42	29	O Neutral
43 44	30	O Disagree
44 45	31	• Strongly Disagree
46	32	
47 40	33	G13. Self-testing for HIV gives me a sense of empowerment by allowing me to choose where I
48 49	34	test.
50	35	O Strongly Agree
51 52	36	O Agree
52 53	37	O Neutral
54	38	O Disagree
55	39	O Strongly Disagree
56 57		
58		
59 60		
60		

1		
1 2		
3	1	
4	2	G14. Self-testing for HIV gives me a sense of empowerment by allowing me to choose with
5 6		whom I test.
7	3	
8	4	O Strongly Agree
9	5	O Agree
10 11	6	O Neutral
12	7	O Disagree
13	8	O Strongly Disagree
14 15	9	
16	10	G15. Did you confirm your positive HIV self-test result at the CDC or hospital?
17	11	O Yes
18 19	12	O No
20	13	
21	14	G16. Did you receive post-self test counseling?
22	15	• Yes (show G17)
23 24	16	O No
25	17	
26	18	G17. What kind of post-test counseling did you receive?
27 28	19	O online
29	20	• telephone
30	20 21	O in-person
31 32	21	• III-person
32 33		C19 Where did way altain your UIV salf test lit?
34	23	G18. Where did you obtain your HIV self-test kit?
35	24	O online
36 37	25	O hospital
38	26	O pharmacy
39	27	O CBO
40 41	28	• friend
42	29	
43	30	 G friend G19. Was your HIV self-test oral or blood? Oral O Blood
44 45	31	• Oral
46	32	O Blood
47	33	
48	34	G20. In the last two years, how frequently did you get tested for HIV?
49 50	35	O Less than once every two years
51	36	O Once a year
52	37	• Once every six months
53 54	38	• Once every three months
55	39	• Monthly
56		
57 58	40	
56 59		
60		
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2		
3	1	G21. What was the result of your most recent HIV test?
4 5	2	• HIV positive/infected (Display G23)
6	3	O HIV negative/uninfected
7 8	4	• I never got my test results (Skip to G25)
9 10	5	
11	6	G22. Did you notify your primary male sex partner about your most recent HIV test result?
12	7	O Yes
13 14	8	O No
14 15	9	• I do not have a regular partner (Do not display G25)
16	10	
17 18	11	G23. Have you ever taken anti-retroviral therapy (ART) for your HIV infection?
19	12	• Yes – I have taken, and I am currently taking
20 21	13	• Yes – I have taken, but I am currently not taking (Display G24)
22	14	O No – I have never taken
23	15	
24 25	16	G24. Why did you stop taking ART? (Select all that apply)
26 27	17	O It was too expensive
28	18	• I didn't like the side effects
29	19	• I didn't feel that it was working
30	20	• I thought it was cumbersome (too much time, forgot to take, etc.)
31 32	21	O Stigma
33	22	
34 35	23	G25. Has your primary male sex partner ever been tested for HIV? (Do not display if no to B8)
36	24	O Yes
37 38	25	• No (Skip to G27)
39	26	
40 41	27	G26. What was the result of your primary male sex partner's most recent HIV test?
42 43	28	• HIV positive/infected
43 44	29	 HIV positive/infected HIV negative/uninfected Never got test results
45	30	• Never got test results
46	31	O I don't know
47 48	32	
49 50	33	G27. Have you ever had a male sex partner who tested HIV positive?
51 52	34	O Yes
53	35	• No (Skip to G30)
54	36	• I don't know (Skip to G30)
55 56	37	
50 57 58 59	38	G28. Did you ever have any anal sex without a condom with a HIV positive partner?
60		

1		
2		
3 4	1	O Yes
5	2	O No
6 7	3	
8	4	G29. Approximately how many HIV positive male sex partners have you had?
9 10	5	sex partners (Number input)
11	6	
12	7	G30. Have you ever been tested for syphilis?
13	8	O Yes
14 15	9	• No (Skip to G36)
16	10	
17	11	G31. Have you ever used a self-testing kit for syphilis?
18 19	12	O Yes
20	13	• No (Skip to G36)
21	14	
22 23	15	G32. Was your self-test the first time you ever tested for syphilis?
24	16	• Yes (Do not display G33)
25	17	O No
26	18	
27 28		$C^{22} W_{1} + 1 = 0 = 14 = 0 = 0 = 1111 = 4 = 111 = 111 = 4 = 111 = 111 = 4 = 1111 = 111 = 111 = 111 = 111 = 111 = 111 = 111 = 111 = 111 = 111 = $
29	19	G33. What happened to your syphilis testing frequency after you first used a self-test?
30	20	O Increased
31	21	O Decreased
32 33	22	O No change
34	23	
35	24	G34. Where did you obtain your syphilis self-test kit?
36 37	25	O online
38	26	• hospital
39	27	O pharmacy
40 41	28	O CBO
41	29	G35. Have you ever performed syphilis and HIV self-testing together?
43	30	
44	31	G35. Have you ever performed syphilis and HIV self-testing together?
45 46	32	O Yes
40 47	33	O No
48	34	
49 50	35	G36. In the last twelve months, which of the following services did you receive (Select all that
50 51	36	apply):
52		
53		
54 55		
56		
57		
58 59		
59 60		

2		
3 4	1	• Condom distribution
4 5	2	• Lubricant distribution
6	3	• Peer Education
7 8	4	• STD Diagnosis or Treatment
8 9	5	• HIV counseling or Testing
10	6	• AIDS/STD Materials (pamphlets, etc.)
11	7	
12 13	8	
14	9	I. Community Engagement (Q133-143)
15	10	<i>The next set of questions will ask you about your experiences with activities in your community</i>
16 17	11	promoting sexual health.
18	12	promoting sexual neutrit.
19	13	I1. In the last three weeks, have you viewed any videos promoting condom use among MSM?
20 21	13 14	• Yes
22	15	O No
23	15 16	
24 25	10	I2. In the last three weeks, have you viewed any videos promoting HIV testing among MSM?
26		
27	18	O Yes
28 29	19	O No
30	20	
31	21	I3. Are you aware of any ongoing community events promoting sexual health among MSM?
32 33	22	O Yes
34	23	O No
35	24	
36 37 38	25 26	I4. Have you ever helped organize a testing and/or awareness campaign (e.g. HIV, condom use, etc.) that promoted sexual health among MSM?
39 40		
41 42		
43		
44		
45 46		
47		
48		
49 50		
51		
52		
53 54		
55		
56 57		
57 58		
59		
60		

1 2		
3	1	O Yes
4 5	2	O No
5 6	3	
7	4	I5. Have you ever volunteered at a health clinic or other location that provided sexual health
8 9	5	services among MSM?
10	6	O Yes
11	7	O No
12 13	8	
14	9	I6. Have you ever encouraged someone else to get tested for HIV and/or another sexually
15 16	10	transmitted disease?
17	11	O Yes
18	12	O No
19 20	13	
21	14	I7. Have you ever accompanied a friend or partner to a testing facility to get tested for HIV
22 23	15	and/or another sexually transmitted disease?
23 24	16	O Yes
25	17	O No
26 27	18	
28	19	18. How important to you is community engagement and participation in developing sexual
29	20	health campaigns (for your own community)?
30 31	21	O Very important
32	22	O Important
33 34	23	• Neither important or not important
35		
36		
37 38		
39		
40 41		
42		
43		
44 45		
46		
47 48		
49		
50 51		
51 52		
53		
54 55		
56		
57		
58 59		
60		

1	• Slightly important
2 3	O Not important
4 5	I9. Have you ever participated in online forums or discussions on social media (ie. Weixin, Weibo, Twitter, or other on-line communities) about about sexual health, condom use, or
6	HIV/STD testing or related services?
7	O Yes
8 9	O No
10	I10. Do you have a Weibo account?
11	• Yes (Display I11)
12	O No
13	
14 15	I11. How many Weibo followers do you have?
15	O Less than 100
16 17	○ 101-500○ 501-1000
17	• 501-1000 • 1001-1500
19	O 1501-2000
20	• More than 2001
21	
22	
23	Video 1: Crowdsourcing
24 25 26 27	We would now like you to watch a short-one minute video. Please make sure to view the entire video before closing the window. The video may take up to a minute to load, thank you for your patience.
28	Video 2: Social Marketing
29 30 31 32	We would now like you to watch a short-one minute video. Please make sure to view the entire video before closing the window. The video may take up to a minute to load, thank you for your patience.
33	End of Survey
34 35 36 37	Please confirm your mobile phone number at this time to receive our reminder of the follow-up survey and reward. Please notice that only after you finish the 3 week follow up could you get the 100 top up reward.
37 38 39	• Mobile Phone #s: (<i>Text Entry</i>) (must be 11 digits)
40	
41	Follow-up Contact (Q144-145)

1		
2 3	1	
4	1	
5 6	2 3	FUC1. Thank you for taking the time to complete our survey! Based on your responses to our
7		questionnaire, we request that you to complete a follow-up survey in three weeks' time. Upon
8	4	completion of this survey, you will receive an additional 50 RMB mobile phone recharge! When
9	5	the time comes, we would like to send you a reminder to complete the survey via QQ. Will you
10 11	6	agree to provide us your QQ number? If you agree, you will be contacted by the following user:
12	7	
13	8	Number: 2663701478
14 15	9	Name: 赛思研究团队
16	10	
17 18	11	• Agree (Display FUC2)
19	12	O Disagree
20	13	
21 22	14	FUC2. Please input your QQ number:
23	15	• QQ number:
24 25	16	
25 26	17	Referral (Q146)
27	18	
28	19	R1. If you think any of your male friends would be interested in participating in our research
29 30	20	survey, please share our study with them! Alternatively, you can provide us with either their
31	20 21	mobile phone or QQ number, and we will send them a link to our survey. (Please enter as many
32	22	unique numbers as you are willing in the spaces provided.)
33 34	23	unique numbers as you are winning in the spaces provided.)
35	24	If you provide a QQ number for referral, please notify your friend(s) that they will be contacted
36 37	25	by 赛思研究团队 (#: 2663701478).
38		
39	26	If you provide a mobile phone number for referral, please notify your friend(s) that they will be
40 41	27	contacted by 18613067997.
42	28	• Mobile Phone #s:
43	29	 Mobile Phone #s: QQ numbers:
44 45	30	
46	31	
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SPIRIT 2013 Checklist: Recommended items to address in a clinical trial protocol and related documents*

11 12 13	Section/item	ltem No	Description	Addressed on page number
14 15 16	Administrative inf	formatior		
17 18	Title	1	Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym	1
19 20	Trial registration	2a	Trial identifier and registry name. If not yet registered, name of intended registry	3
21		2b	All items from the World Health Organization Trial Registration Data Set	1,14-15
22 23	Protocol version	3	Date and version identifier	1
24 25	Funding	4	Sources and types of financial, material, and other support	<u>14</u>
26 27	Roles and	5a	Names, affiliations, and roles of protocol contributors	<u> </u>
28 29	responsibilities	5b	Name and contact information for the trial sponsor	14
30 31 32 33		5c	Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	15
 34 35 36 37 38 39 40 41 42 43 44 		5d	Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	<u>N/A</u> 1
45 46 47 48	l əb əupirlqsrgoildi8 4		a as 10.1136/md. nopoind/.com/ no 10.2016. Downloaded from http://hmjopen.bmj.com/ on 3.055 on 3.055 on 3.056 on 3 Enseignement Superieur (BEES) . Protected by copycigh seing/fachging/fachges/ig/achging/fachging//achging/fachging/fachging/fachging/fachging/f	nəqO LM٤: أناحة مالمانغام

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3 4	Introduction				
5 6 7	Background and rationale	6a	Description of research question and justification for undertaking the trial, including summary of relevant	<u>4</u>	_
8 9		6b	Explanation for choice of comparators	4	
10 11	Objectives	7	Specific objectives or hypotheses	5	
12 13 14 15	Trial design	8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, noninferiority, exploratory)	6	_
16	Methods: Participa	nts, inte	erventions, and outcomes		
17 18 19	Study setting	9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained	6	_
20 21 22 23	Eligibility criteria	10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and	7	_
23 24 25 26	Interventions	11a	Interventions for each group with sufficient detail to allow replication, including how and when they will be	8	_
20 27 28 29		11b	Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose	<u>N/A</u>	_
30 31 32		11c	Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return, laboratory tests)	8	_
33 34		11d	Relevant concomitant care and interventions that are permitted or prohibited during the trial	<u>N/A</u>	
35 36 37 38 39	Outcomes	12	Primary, secondary, and other outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, _ median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended	9	_
40 41 42 43	Participant timeline	13	Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for _ participants. A schematic diagram is highly recommended (see Figure)	12	_
44					2
45 46 47			Protected by copyrights เก่าผู้เก่าเราได้เรียง เราเรา อายังเล่า เล่าเล่า เล่าเล่า เล่า เล่า เล่า เล		
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Sample size	14	Estimated number of participants needed to achieve study objectives and how it was determined, including _ clinical and statistical assumptions supporting any sample size calculations	<u>10</u>	_
Recruitment	15	Strategies for achieving adequate participant enrolment to reach target sample size _	7	_
Methods: Assignn	nent of i	interventions (for controlled trials)		
D Allocation:				
2 Sequence 3 generation 5	16a	Method of generating the allocation sequence (eg, computer-generated random numbers), and list of any _ factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions	<u>11</u>	_
7 3 Allocation 9 concealment 0 mechanism 1	16b	Mechanism of implementing the allocation sequence (eg, central telephone; sequentially numbered,	<u>11</u>	_
Implementation	16c	Who will generate the allocation sequence, who will enrol participants, and who will assign participants to	<u>11</u>	_
Blinding (masking)	17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how	<u>N/A</u>	_
	17b	If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant's _ allocated intervention during the trial	<u>N/A</u>	_
Methods: Data col	lection,	management, and analysis		
Data collection methods	18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related _ processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	<u>10</u>	
	18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be	9	_
2 3 4				
5 6	-,	Protected by copyrights (ល្បាន and a copyright and a copyrigh		
7		s 202, 4f anuL no \moɔ.imd.naqoimd\ltq1ff mo1 babsolnvade. Downloaded from http://mgiopen.202. Enseigneent Superieur (BESS) Brester her stats and set of betaler and set of betaler and set of betaler lies to the provise of betaler lies to the provise set of betaler lies and set of betaler lies to the provise set of betaler lies and set of betaler lies to the provise set of betaler lies and set of betaler lies to the provise set of betaler lies and set of beta	iand is in mode	
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Page	61	of	61
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2 3 4 5 6	Data management	19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality _ (eg, double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol	14	_
7 8 9	Statistical methods	20a	Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the _ statistical analysis plan can be found, if not in the protocol	11	
10 11		20b	Methods for any additional analyses (eg, subgroup and adjusted analyses)	12	
12 13 14		20c	Definition of analysis population relating to protocol non-adherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)	12	
15 16	Methods: Monitorir	ng			
17 18 19 20 21 22	Data monitoring	21a	Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of	9	_
23 24 25		21b	Description of any interim analyses and stopping guidelines, including who will have access to these interim _ results and make the final decision to terminate the trial	<u>N/A</u>	
26 27 28	Harms	22	Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct	N/A	_
29 30 31	Auditing	23	Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	<u>N/A</u>	
32 33 34	Ethics and dissemi	nation			 4 о г w в
35 36 37	Research ethics approval	24	Plans for seeking research ethics committee/institutional review board (REC/IRB) approval	12	
38 39 40 41 42	Protocol amendments	25	Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC/IRBs, trial participants, trial registries, journals, regulators)	12	_
43 44					4
45 46		.6	Protected by comparing at a not complete in the uses telested in the state of the		
47 48 49	ce Bibliographique de l	onepA ts	2025, 41 anul no \moo.[md.naqojmd\//bmjopen.bmloaded from http://bmjopen.bmj.com/ on June 14, 2025 . . (SBEA) .)pen: first publ	BMJC

Consent or assent	26a	Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)	13			
	26b	Additional consent provisions for collection and use of participant data and biological specimens in ancillary _ studies, if applicable	<u>N/A</u>			
Confidentiality	27	How personal information about potential and enrolled participants will be collected, shared, and maintained _ in order to protect confidentiality before, during, and after the trial	13			
Declaration of interests	28	Financial and other competing interests for principal investigators for the overall trial and each study site _	16			
Access to data	29	Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that	14			
Ancillary and post- trial care	30	Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial _ participation	<u>N/A</u>			
Dissemination policy	31a	Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals,	14			
	31b	Authorship eligibility guidelines and any intended use of professional writers	<u>N/A</u>			
	31c	Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code _	<u>N/A</u>			
Appendices						
Informed consent materials	32	Model consent form and other related documentation given to participants and authorised surrogates	25			
Biological specimens	33	Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	23			
Amendments to the p	orotoco	that this checklist be read in conjunction with the SPIRIT 2013 Explanation & Elaboration for important clarificati I should be tracked and dated. The SPIRIT checklist is copyrighted by the SPIRIT Group under the Creative Com - <u>NoDerivs 3.0 Unported</u> " license.				
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