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Using advertisements to create demand for voluntary medical male circumcision in South Africa

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Using advertisements to create demand for voluntary medical male circumcision in South Africa

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Summary

Voluntary medical male circumcision (VMMC) reduces HIV transmission by between 51 and 76 per cent, yet take-up of this fully subsidised service remains low in much of the region of the world most heavily afflicted with the HIV/AIDS pandemic (WHO 2014). To provide evidence on the barriers to VMMC take-up, we conducted a randomised controlled field experiment in Soweto, South Africa.

We distributed postcards with a compensation offer, information on a possibly unknown benefit of VMMC and/or a framing message to 6,000 households in South Africa. Our results indicate that modest compensation offer (i.e. R100 or approximately US$10) conditioned on the VMMC consultation increased take-up of the VMMC procedure by 2.5 percentage points (p-value=0.000), or a 400 per cent increase relative to take-up in the control arm. Simply adding the challenge, 'Are you tough enough?', to our basic postcard increased take-up of the VMMC procedure by 1 percentage point (p-value=0.03), or a 167 per cent increase relative to take-up in the control arm. However, adding the challenge to the compensation postcard appears somewhat to have reduced the effectiveness of the compensation postcard, and adding the compensation offer reduced the effectiveness of the challenge. In contrast to the compensation and to the challenge, we find no statistically significant effect of providing information about a possibly unknown benefit of VMMC on VMMC take-up.

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Abbreviations and acronyms

CCT	Conditional cash transfer
CHAPS	The Centre for HIV and AIDS Prevention Studies
HCT	HIV counselling and testing
MMC	Medical male circumcision
NSP	National Strategic Plan (for South Africa)
SACEMA	South African Centre for Epidemiological Modelling and Analysis
STI	Sexually transmitted infection
UNAIDS	Joint United Nations Programme on HIV/AIDS
VMMC	Voluntary medical male circumcision
WHO	World Health Organization

1. Introduction

Evidence from randomised controlled trials conducted in Kenya (Bailey *et al*. 2007), Uganda (Gray *et al*. 2007) and South Africa (Auvert *et al*. 2005) indicates that voluntary medical male circumcision (VMMC) reduces HIV transmission by 51 to 76 per cent. Based on these findings, the World Health Organization is aiding scale-up of mass VMMC campaigns in 14 high HIV prevalence, low male circumcision prevalence priority countries in Sub-Saharan Africa (WHO 2009). However, take-up of this fully subsidised health service remains low in much of the region of the world most heavily afflicted by the HIV and AIDS pandemic. Through the end of 2013, these countries had performed fewer than six million circumcisions out of the target number of nearly 21 million circumcisions (WHO 2014).

With approximately one out of every six HIV and AIDS cases in the world (WHO 2012) and only two out of five males circumcised (Department of Health *et al*. 2007, Simbayi *et al*. 2011), South Africa represents a large fraction of the potential target population worldwide.

In the National Strategic Plan (NSP) for South Africa, it is 'recommended that the Department of Heath considers the effectiveness of male circumcision as an HIV prevention intervention and develop appropriate policies'' (South Africa Department of Health 2011, p.146). The Government of South Africa has included VMMC as one of five components of the HIV counselling and testing (HCT) campaign of integrated prevention strategies with the goal of performing at least 4.3 million VMMCs by 2016 (South Africa Department of Health 2011). Thus, the South African government has fully embraced VMMC as a key prevention strategy and set forth a target of 4.3 million VMMCs for the next five years in order to reach 80 per cent of the eligible male population. While the evidence of the risk-reducing impact of male circumcision is now accepted, in order to have a population level impact on HIV prevalence in South Africa, a large number of HIV negative men would have to choose to undergo circumcision. The challenge lies in generating such demand in South Africa. However, there are currently numerous areas that are underserviced and numerous areas where there is a need for increased-demand creation in order to reach the targets set by the South African NSP.

This study tests innovative marketing strategies for encouraging take-up of VMMC services. To do so, we distributed 6,000 postcards in Soweto, with six different combinations of messages, including an offer of financial compensation conditional on attending a VMMC consultation, a challenge message ('Are you tough enough?') and information about partner preferences. We then measured and compared the rate of take-up of the circumcision procedure as well as consultations and text messages and calls to request more information for each of the six postcard types. This study was undertaken in order to learn about barriers to take-up of VMMC and potential policy levers that could be pulled to increase the number of men in South Africa who choose to undergo VMMC procedures and reduce the spread of HIV.

Gauteng Province, where Johannesburg (and the area of Soweto) is located, has the lowest male circumcision prevalence, 25.2 per cent, of any province in South Africa (Department of Health *et al*. 2007), yet many health facilities offer VMMC services.

In addition, the literacy rate in South Africa is more than 85 per cent (WHO 2012) so postcard recipients are likely to be able to read the material presented. Urban areas tend to have higher literacy rates than the rest of the country, so among recipients, the literacy rate may be higher. According to the South African government's statistics, in Johannesburg, only 3.3 per cent of the population over age 20 has had no schooling, while 63.1 per cent has completed primary school and 28.2 per cent has completed secondary school.[1]

The sample involved in this study was designed to be representative of Soweto. However, the treatments (financial compensation for transportation, information about partner preferences and an appeal to masculinity/toughness) were not designed to be specific to this area, so there is no clear reason to expect that results would be different in another area. These are general tools used by marketers all over the world to encourage take-up of a wide range of products, and we anticipate that these impacts would be likely to be seen in many other contexts.

The intervention could be easily expanded through either distribution of postcards advertising VMMC or use of these messages in other formats. The analysis compares actions taken by those who receive postcards with different messages; it seems likely that the findings could generalise to other means of message distribution, including newspaper or radio ads or billboards.

The rest of this paper is organised as follows: section 2 includes our evaluation questions, interventions and theory of change; section 3 states our study timeline; section 4 presents our implementation assessment; section 5 describes the main methodology of the study; section 6 provides the main impact analysis; section 7 describes results of the focus group discussions; in section 8, we discuss the results in more detail; and section 9 identifies several policy implications and questions for future research. The appendices include our survey instruments and other implementation materials.

2. Interventions, evaluation questions and theory of change

2.1 Interventions

We distributed postcards to 6,000 individuals with six different combinations of messages and/or promises of compensation for transportation, and we measured the differential impact of each postcard in encouraging phone calls and text messages to get more information, clinic visits and circumcisions. All postcards promised refreshments for those who brought them to a participating VMMC clinic in order to make the postcards self-tracking and facilitate estimation of the impacts of the messages on take-up.

[1] http://www.statssa.gov.za/?page_id=1021&id=city-of-johannesburg-municipality

Our study included six study arms of equal size (i.e. 1,000 households each). First, control postcards included basic information that VMMC reduces HIV transmission by 51 to 76 per cent and the names and workdays of participating clinics. They further indicated that a male age 18 or older could return the postcard to a clinic and receive light refreshments while participating in a VMMC counselling session. All treatment postcards contained this information and the conditional offer of light refreshments as well. The offer of light refreshments served as an incentive for the recipient (or another adult male) to bring the postcard with him if he chose to come to a clinic. This self-tracking mechanism allowed us to measure take-up of multiple steps in the VMMC cascade and observe how this varied across study arms. Second, compensation postcards offered R100 (approximately US$10) as compensation for attending a VMMC counselling session at a participating clinic in addition to the statements included in the control postcard. Third, 'information' postcards stated that a recent survey indicated that among partners of uncircumcised men, two out of three would prefer that their partner be circumcised, in addition to the statements in the control postcard. Fourth, compensation+information postcards combined the offers and information on the 'compensation' postcards and the 'information' postcards. Fifth, challenge postcards added the statement, 'Are you tough enough?', to the control postcards to frame the statement about the 51 to 76 per cent reduction in HIV transmission. Sixth, compensation+challenge postcards combined the offers and the framing in the 'compensation' postcards and the 'challenge' postcards.

All postcards also listed a phone number to call or text for more information. Each postcard type included a different number to facilitate recording which postcards encouraged these calls and messages. A nurse responded to each call within 48 hours to answer any questions.

2.2 Evaluation questions

Our pilot project provides causal evidence on three main evaluation questions:

(1) How responsive is take-up of VMMC to the offer of transportation reimbursement (R100) for completing the VMMC consultation? (Comparison of groups 1, 3 and 5 with groups 2, 4 and 6.)
(2) How responsive is take-up VMMC to the provision of information about partner preferences? (Comparison of groups 1 and 2 with groups 3 and 4.)
(3) How responsive is take-up of VMMC to creative advertising messages that link the VMMC decision to ideas of masculinity? (Comparison of groups 1 and 2 with groups 5 and 6.)

By VMMC take-up, we mean each of two key steps in the VMMC cascade: completing the VMMC consultation and completing the VMMC procedure. These questions are the same as those included in the final protocols submitted to 3ie. These deviate from the initial proposals in the elimination of a treatment arm, which would have offered R300 conditional on undergoing the procedure. In consultation with the human subjects committee of the University of Witwatersrand, this arm was removed to avoid coercion.

2.3 Theory of change

Below, we present our theory of change with the assumptions and evidence for these assumptions summarised below. Our theories of change link a door-to-door social marketing campaign to a consumer demand model of health behaviour decision-making and psychological factors affecting VMMC to clinical outcomes. The proposed interventions seek to affect the VMMC decision-making process by targeting three key channels: reducing opportunity costs, providing information and framing the messaging. Two are classical approaches to demand creation (reducing [opportunity] costs and providing information about benefits) and one is a more innovative behavioural approach (framing).

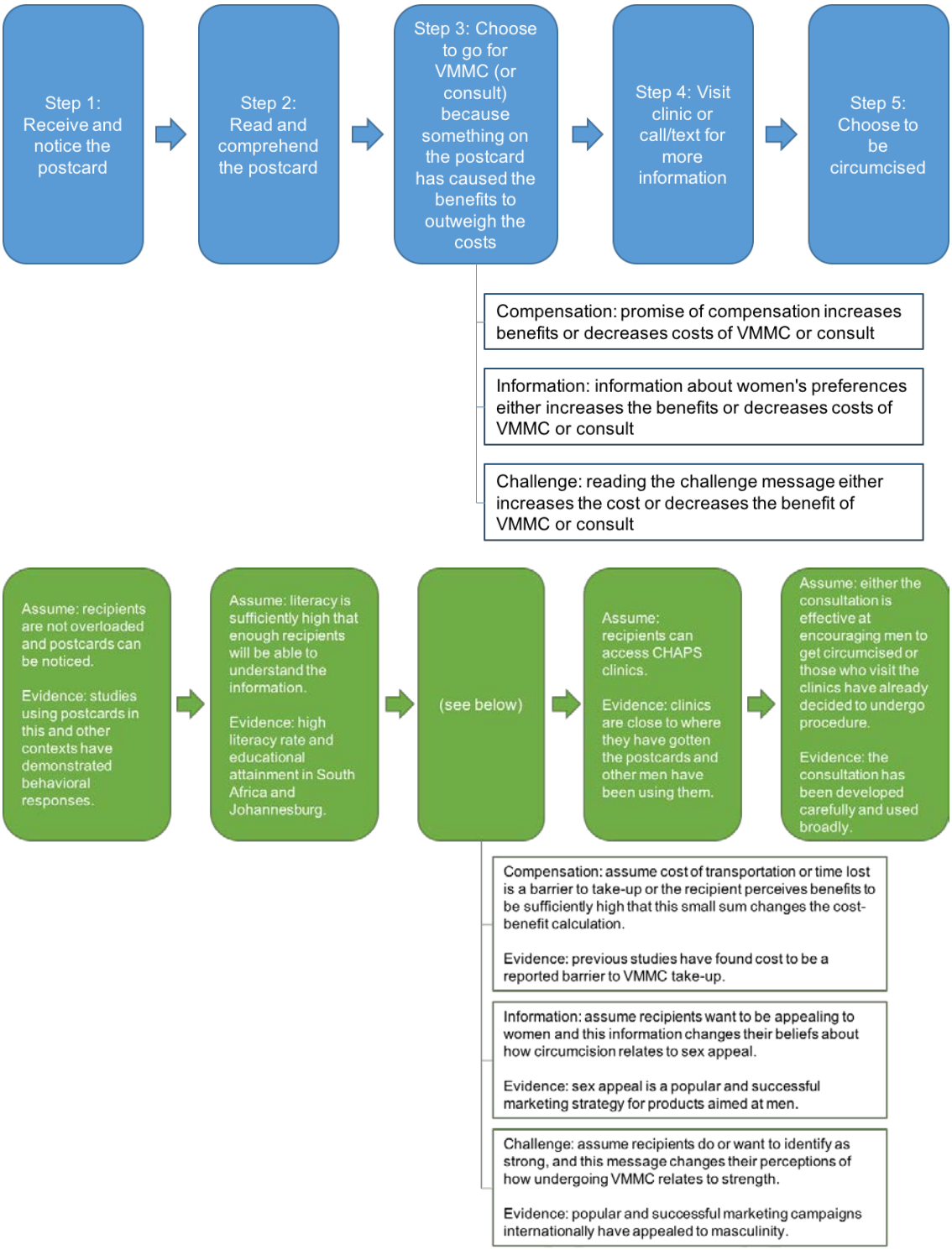
Our theory of change posits that financial compensation for costs associated with visiting VMMC clinics and well-designed messages appealing to men's interests can each encourage individuals to take the steps necessary to learn about VMMC and choose to get circumcised.

This theory is based on a consumer demand model of health behaviour decision-making under uncertainty. An individual male weighs the expected costs and benefits of MMC given the available information. Expected costs and benefits include transportation, time (e.g. lost work), physical discomfort, a change in sexual pleasure/performance, a change in the likelihood of contracting HIV or other sexually transmitted infections (STIs), improved hygiene (Mattson *et al*. 2005), approval from current or potential partners (Simbayi *et al*. 2011), and psychological factors (e.g. associated with masculine identity). We are assuming that the interventions in this experiment will interact with these many other factors that contribute to an individual's assessment of whether the benefits outweigh the costs.

Existing literature on demand for VMMC highlights several categories of costs that may be inhibiting VMMC take-up. First, evidence from a few studies (Herman-Roloff *et al*. 2011; Chikhumba *et al*. 2012) indicates that VMMC take-up is substantially higher at lower prices, indicating that the sticker price of VMMC may be too high and that the decision to get circumcised is relatively price sensitive. Second, the results of several studies (Westercamp & Bailey 2007; Westercamp *et al*. 2010; Herman-Roloff *et al*. 2011; Lissouba *et al*. 2011) suggest that individuals may not choose to receive VMMC because of the opportunity cost of forgone wages.

Third, many studies (Westercamp & Bailey 2007; Westercamp *et al*. 2010; Lissouba *et al*. 2011; Plotkin *et al*. 2011; Kaunda *et al*. 2012) report that individuals are very concerned about the pain associated with the procedure and the recovery period. Fourth, there is a large body of evidence (Westercamp & Bailey 2007; Westercamp *et al*. 2010; Herman-Roloff *et al*. 2011; Lissouba *et al*. 2011; Plotkin *et al*. 2011) that men are concerned that VMMC will reduce sexual performance and pleasure. These costs could also be related to our other theory of change based on psychological factors of decision making. Our study allows these and other costs and benefits to be the backdrop for the decision-making process (figure 1) influenced by the intervention.

Figure 1: Decision-making process influenced by the intervention



2.3.1 Rationale for postcard as marketing tool

Previous work has demonstrated that direct mailings – interventions with similarly limited personal contact – can change behaviour. The results of direct mailing experiments described in Gerber *et al*. (2008), Bertrand *et al*. (2010) and Regan

(2012) indicate that simple messages, without personal contact, as advertised through direct mailings, can have large impacts on individuals' choices.

Postcard recipients are likely to engage with the first step in the program, namely reading the postcard. The literacy rate in South Africa is more than 85 per cent (WHO 2012), and this rate is likely to be higher among young, urban men.

2.3.2 Rationale for financial compensation for transportation

Studies from several regions around the world indicate that conditional cash transfers (CCTs) are highly effective at increasing take-up of important preventative health inputs. For example, Barham and Maluccio (2009) find that the national CCT program in Nicaragua has increased vaccination rates. Numerous other studies (Lagarde *et al*. 2007; Baird *et al*. 2010; Rangathan & Lagarde 2012) have found similar effects for a variety of health behaviours, including VMMC take-up (Otieno 2013). CCTs are effective at increasing human capital investments more generally and not just health investment (Rawlings & Rubio 2005; Fernald *et al*. 2009; Leroy *et al*. 2009). In two studies, researchers find that conditional compensation can increase take-up of VMMC in Kenya (Thirumurthy *et al*. 2014, 2015). These studies suggest that financial compensation for the costs of transportation might encourage take-up.

The R100 voucher conditional on completing the VMMC consultation reduces the opportunity cost of VMMC by compensating the individual receiving the circumcision for foregone income and transport costs associated with the VMMC consultation.

If foregone income associated with the VMMC procedure is an important barrier to VMMC uptake, then the expected costs of VMMC for individuals receiving this voucher will be reduced and individuals be more likely to choose MMC. If these costs are an important barrier to learning more about VMMC from a medical provider, then individuals receiving this voucher will perceive an important reduction in the expected costs of the VMMC consultation and will be more likely to choose to complete the consultation. If learning more about VMMC from a medical provider in the context of a clinic is an important barrier to choosing to complete the VMMC procedure, then individuals receiving this voucher may be more likely to choose MMC.

2.3.3 Rationale for and choice of information provision

Existing evidence suggests that providing information can change health behaviours, including in the context of VMMC. While previous work showed that informing individuals about the HIV prevention benefits of circumcision can increase interest in the procedure, the many mass information campaigns that have occurred since these earlier studies were conducted may mean that this information is already widely known (Westercamp *et al*. 2007; Herman-Roloff *et al*. 2011; Plotkin *et al*. 2011; Hoffman *et al*. 2015). Although individuals in South Africa may be well-informed about the HIV prevention benefits of VMMC, we note that they may be unaware of another potential benefit of VMMC: partner preference for circumcised men. A study in South Africa had found that two thirds of women reported that they preferred men who were circumcised (Simbayi *et al*. 2011). Providing this information may suggest to men that their partner is likely to want them to be circumcised. If a low level of perceived benefit to

circumcision is a barrier to VMMC take-up, despite relatively widespread knowledge of its effects on HIV transmission, then men receiving this information on a possibly previously unknown benefit of VMMC may perceive a greater benefit to VMMC and increase take-up of VMMC.

2.3.4 Rationale for challenge

The treatment arm that includes the challenge, 'Are you tough enough?' frames the VMMC decision as a masculinity question. In doing so, it could suggest to men that the only barrier to choosing VMMC is their own willingness to endure the procedure and that completing the procedure can demonstrate their strength. There is evidence that many men choose not to be circumcised because they are concerned about pain associated with the procedure (Lissouba *et al*. 2011; Herman-Roloff 2011). We hypothesise that framing the circumcision decision as 'Are you tough enough?' will decrease (and not increase) concern about pain, and thus reduce the 'cost' of perceived or anticipated pain. Evidence from decision-making in a broad set of contexts indicates that framing has substantial effects on many human behaviours (Tversky & Kahneman 1981).[2]

3. Timeline

Table 1 outlines the main activities undertaken as part of this demand-creation project.

Table 1: Timeline

Activity	Dates
Preparation and IRB approval	November 2013–April 2014
Training of field staff – postcard distributors, clinic staff, etc.	April–May 2014
Postcard distribution	June 2014
Receipt of clinic visitors and data collection	June 2014–August 2014
Data entry, analysis, initial presentation of preliminary results, report-writing	August 2014–December 2014

[2] Two presentations at the April 2013 matchmaking meeting organized by 3ie in Lusaka, Zambia, motivated this study's inclusion of the 'Are you tough enough?' message. First, professional marketers pointed out successful advertising campaigns targeting men and made the claim that appeals to masculinity could be incredibly effective in encouraging men to buy new products or potentially take-up some desired behaviour. Second, during a small-group discussion, one qualitative researcher mentioned that in one of his focus groups about VMMC, participants who were considering circumcision had brought up that they did not want to be seen as weaker than members of a different ethnic group that practiced traditional circumcision and that this was a motivating factor to undergo the procedure. These two presentations encouraged our use of the slogan to appeal to masculinity to motivate take-up of VMMC. To our knowledge, this type of campaign has not been previously described in academic literature.

4. Process evaluation and record-keeping (implementation assessment)

The key accomplishments in the implementation of this program were:

- 6,000 postcards distributed
- 125 text messages/calls received (health outreach worker responded to each)
- 67 telephone surveys completed
- 123 consultations
- 123 in-person surveys completed
- 85 respondents received cash reimbursements
- 110 circumcisions performed

We set up record forms, most of which allowed for the most important information to be recorded at least twice. For example, it was extremely important to know which postcard someone had when they called or when they came to the clinics. This information was recorded both on a summary record sheet to be filled immediately and on the telephone/clinic questionnaires. In addition, the record sheets and the questionnaires both included blanks for the letter and the number on the postcard. If one of these was recorded incorrectly, the other would let us know which type of postcard was received by that respondent.

The primary record sheets were:

- Distribution checklist, which included for each numbered postcard the date and time when it was handed out, and whether it was given to a man or a woman.
- Telephone record sheet, which included which phone received the call or SMS, the time and date, content of any message and a record of when the respondent was contacted. If consent was received, this sheet also included the date when the survey was conducted.
- Clinic record sheet, which included the postcard number and type, the date and time of the visit, the source of the postcard, and a record of whether consent was received, survey was conducted, consultation happened, HIV test done and whether the respondent was ultimately circumcised.
- Separate clinic record sheets for reimbursements and HIV tests, to be stored separately.

4.1 Difficulties confronted

Because of the sensitivity of the information being collected about individuals, the institutional review boards that approved this project did not want us to keep information about postcard recipients that could be used to identify them in the future. This meant that keeping information on where they lived was not possible. This generated two concerns. First, because postcard distributors were not recording the locations of houses where they had left cards, monitoring was difficult. Therefore, we had to rely on careful training of distributors and a system in which more effort was needed to choose who would receive different postcards. This system is described in more detail in the section outlining data collection. The second issue is that this makes

a long-term follow-up of recipients impossible. Therefore, this study is limited to its focus on immediate impacts of the various treatments on take-up of circumcision.

Another issue that we confronted was difficulty in recruiting focus group respondents from recipients. Although outreach workers contacted those who had visited clinics and said they were interested in participating in future research follow-ups, many were unable to or uninterested in participating. Without contact information on recipients who had not visited CHAPS clinics, we were unable to recruit more than six for a focus group. In order to still include qualitative feedback, we recruited a similar demographic group as respondents, from the same area, to participate in a second focus group discussion.

One motivation for the inclusion of the hotline as an element of this study was that calling or sending a text requires much lower effort, and so we anticipated that take-up here might be higher than in the clinic, which would provide a larger sample of respondents for whom we had demographic information. Unfortunately, many of those who called or texted could not be reached to complete the follow-up survey, and so we only have 67 complete questionnaires. As a result, this limited and possibly selected sample was insufficient to provide additional useful information for the study. Future studies interested in a larger sample here may consider offering small incentives for participation in a phone survey.

5. Methodology

5.1 Evaluation design and implementation

In this postcard-based door-to-door marketing campaign, we randomly assigned households to receive an offer of conditional compensation of R100, information on a possibly previously unknown benefit of VMMC or a framing message.

An overlapping design resulted in six unique postcards:

- Basic voucher (i.e. refreshments conditional on returning postcard) + basic information (i.e. ‘51 to 76 per cent’)
- R100 (approx. US$10) transport voucher + basic voucher
- Information (two out of three partners of uncircumcised men prefer circumcised men) + basic voucher
- Information (two out of three partners of uncircumcised men prefer circumcised men) + R100 transport voucher + basic voucher
- A challenge (‘Are you tough enough?’) + basic voucher
- A challenge (‘Are you tough enough?’) + R100 (approx. US$10) transport voucher + basic voucher

Outreach workers distributed the postcards in sealed envelopes. The order was pre-specified with one of each postcard type in each consecutive set of six postcards. The order of postcard type within each set of six was randomised using Microsoft Excel, and the order was unknown to the distributors. The distributors were instructed to leave a postcard with an adult at every fifth house, using coin-flips to determine the path at each intersection. The details of this plan are described in appendix B.

While field-based randomisation can be compromised if those allocating different treatments can and do deviate from prescribed plans, steps were taken to reduce this risk. The most important is that the envelopes which contained the postcard did not reveal information about which postcard was inside, and the distributors were asked to give the sealed envelope away intact. While other field-randomisation strategies may rely on an individual following the rules regarding who should be provided with clearly better offerings, to compromise this design the distributor would need to open the postcards before distributing them. This would require extra effort in order to deviate from the pre-specified plan. This made it more difficult for a distributor to knowingly choose a different postcard based on the recipient, and provided some assurance of the validity of the field-based randomisation. Training and regular supervision of distributors, as well as careful record-keeping, were also used to try to reduce threats to the randomisation.

The pre-specified and hidden order of the postcards also provided stratification on timing and location of distribution. Among respondents who subsequently presented a postcard at a participating CHAPS clinic, 91 per cent said they had gotten it directly from the distributor and 9 per cent said they had gotten it from a friend or family member. Importantly, our statistical analysis compares VMMC take-up across groups of postcard recipients rather than with non-recipients, which reduces many spillover concerns that complicate other studies. If recipients shared their postcards with those who had not gotten any postcard, and this person visited a clinic, this is not likely to compromise the design because the second person is unlikely to be in another experimental group.

Unlike in many studies that rely on recruited participants, this study is not plagued by selection issues because all randomly selected postcard recipients are effectively included in the analysis. In terms of broader external validity and whether these results are likely to generalize beyond this area of Johannesburg, that is more difficult to assess. We have no reason to believe that results would be different in another context with high HIV prevalence, reasonably high literacy, and where the compensation is of a similar magnitude to typical incomes or transportation costs.

We provide causal evidence on three main evaluation questions:

(1) How responsive is take-up of VMMC to the offer of transportation reimbursement (R100) for completing the VMMC consultation? (Comparison of groups 1, 3 and 5 with groups 2, 4 and 6.)
(2) How responsive is take-up VMMC to the provision of information about partner preferences (Comparison of groups 1 and 2 with groups 3 and 4.)
(3) How responsive is take-up of VMMC to creative advertising messages that link the VMMC decision to ideas of masculinity? (Comparison of groups 1 and 2 with groups 5 and 6.)

By ‘take-up of VMMC’, we mean each of three key steps in the VMMC cascade: texting to receive more information on VMMC (a possible first step in the cascade, although not a necessary step), completing the VMMC consultation and completing the VMMC procedure.

5.2 Sampling design and power calculations

A particular strength of the proposed experiment is that the intervention could be randomised at the individual level and is relatively inexpensive. As a result, it is possible to have substantial power with multiple treatment arms.

To estimate the required sample-size for one group, we assume a two-sided test with an alpha of 0.05, and a goal of 90 per cent power. These are relatively conservative assumptions, so the sample-size could have been larger than needed with less ambitious goals. Similarly, all calculations were done for estimating the impact on clinic visits, although we expected (and found) that the fraction sending text messages would be (and was) higher and therefore closer to 50 per cent, so the power was larger in estimating impacts on text messages.

To be conservative, we assumed that among the control group 5 per cent of those who received postcards would obtain VMMC. If the treatment effect increases this number by 5 percentage points, then the sample-size required would be 621 individuals in each group. With 6 different treatment arms, this would imply a needed total sample size of 3,726, requiring 3,726 postcards to be sent. Because the marginal cost of an additional postcard was small while the cost of being underpowered was low, we elected to include 1,000 postcards per group, or 6,000 in total.

5.3 Data collection

We collected data on take-up at multiple points in the VMMC cascade. In particular, we measured take-up of: (i) a VMMC hotline designed to provide more information on VMMC, (ii) the VMMC consultation and (iii) the VMMC procedure. The hotline data was collected within CHAPS as a member of the research team monitored the six phone lines and recorded each incoming message or missed call. The information about consultations and procedures was collected by clinic employees in four CHAPS-affiliated clinics using the record sheets described in the Process Evaluation section of this report. In addition, these take-up numbers were matched with the number of surveys completed.

Through this survey, we collected data on the characteristics of individuals completing these steps in the VMMC cascade. These characteristics include basic demographic information (e.g. age) and past risky sexual behaviour (e.g. condom use). This was done using a phone survey of those who called and texted and an in-person survey of those who visited a clinic for a consultation.

5.4 Analysis methodology

We measure the relative strength of each treatment arm in encouraging take-up of VMMC. We compare the number of text messages received and the number of clinic visits generated by each arm relative to the same numbers among those who received the comparison postcard (which includes only the basic information about HIV risk reduction common to all postcards and the promise of refreshments). These comparisons were done using a bivariate regression, with the outcome of interest as the dependent variable, and an indicator for being in the treated group as the single

regressand. Without baseline data, there are no co-variates to be included as control variables. The randomised design means that the lack of control variables should not be a source of concern. This analysis was done using Stata version 13. In this simple case with single binary treatment indicators, this is equivalent to a t-test of the difference in take-up rates across the two groups being compared.

The impact of the transportation voucher on requesting more information, consultation and VMMC take-up can be estimated in two different ways. The simplest is to compare those who received a postcard promising transportation reimbursement with the most basic message against those who received a postcard with only the most basic message and no transportation reimbursement. This is a comparison of group 2 with group 1. The alternative is to compare outcomes for all postcards that offered transportation reimbursement with all postcards that did not. This is a comparison of groups 2, 4 and 6 with groups 1, 3 and 5. The second method would be preferred if we think that the messages and the voucher promise will not interact. However, given the results, this may not be a reasonable assumption, as we will discuss below.

As with evaluating the impact of financial compensation for transportation, evaluating the provision of information about partner preferences can be implemented in two ways. We can compare the simplest version of the postcard (with no financial compensation offered) with and without this information, or we can compare all versions of the postcard (with and without financial compensation) with and without this information. The groups being compared are listed in each of the results tables.

6. Results

Overall, 125 calls and text messages were received, 123 recipients visited clinics for consultations, and 110 circumcisions were performed. As a fraction of the total, 2.08 per cent of postcard recipients responded with a call or a text, 2.05 per cent visited a clinic, and 1.8 per cent ultimately got circumcised. Approximately 90 per cent of those who visited a clinic for a consultation chose to get circumcised, which is a very high conversion rate. As will be discussed in detail below, these numbers vary dramatically by postcard type.

Figure 2 shows the number of recipients of each postcard type who called or texted the VMMC hotline.

Figure 2: Hotline take-up by postcard type

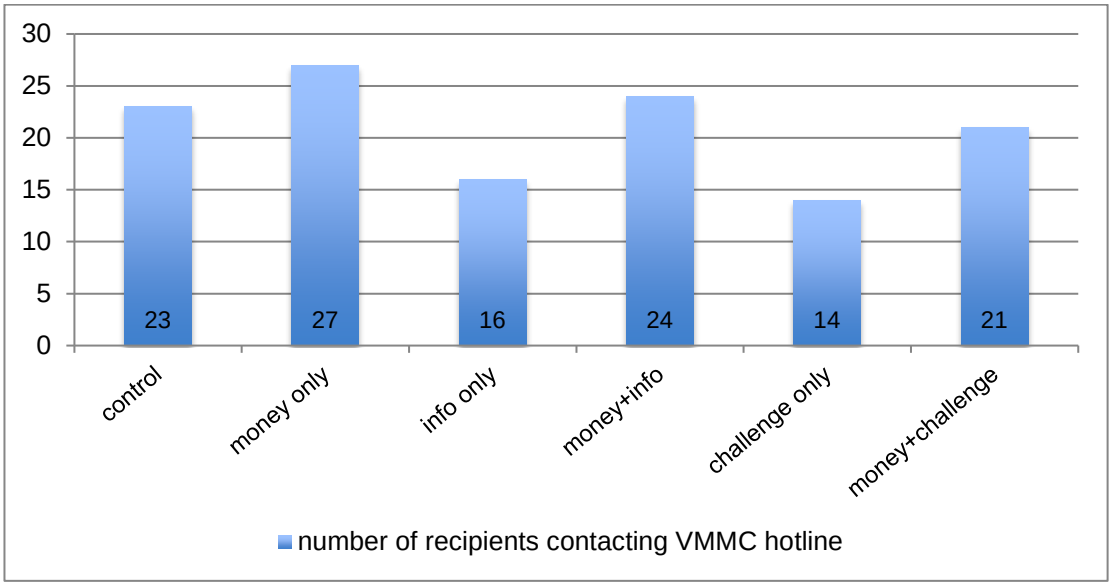


Figure 3 reports the number of recipients of each postcard type who brought in a postcard to a VMMC consultation (i.e. counselling session).

Figure 3: Consultation take-up by postcard type

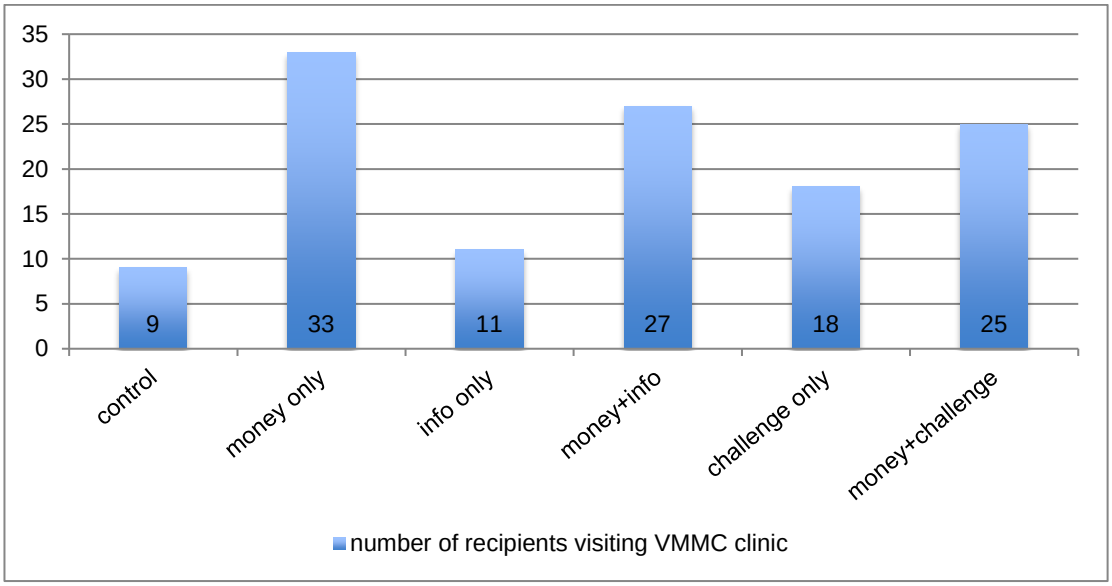
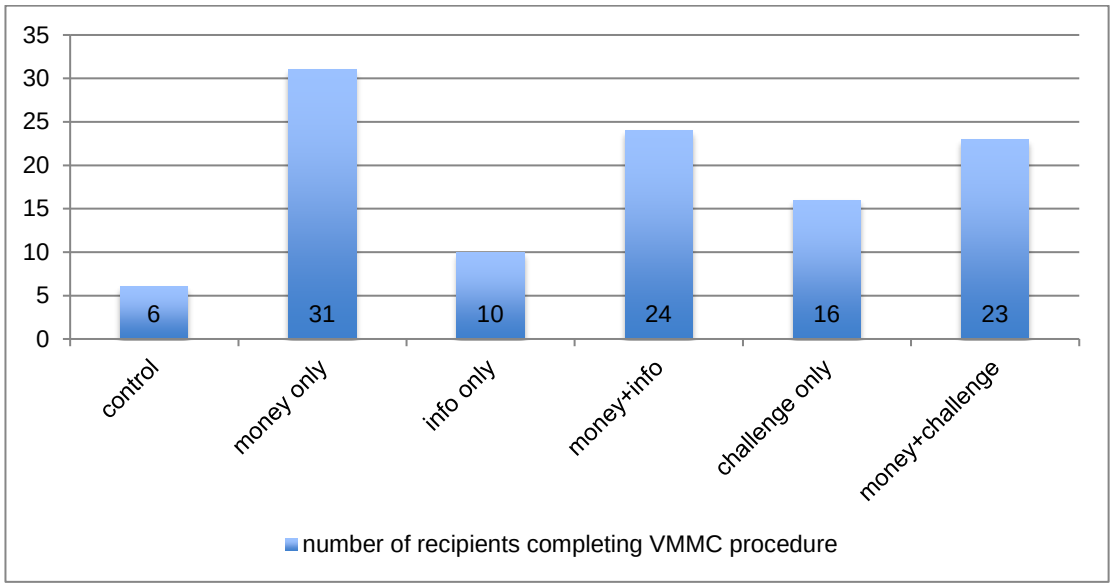


Figure 4 presents the mean take-up of the VMMC procedure by postcard type and 95 per cent confidence intervals.

Figure 4: Procedure take-up by postcard type



6.1 Demographic characteristics of respondents

Each individual who visited one of the participating clinics was asked to complete a short survey including questions about basic demographic characteristics, previous risk-taking and risk preferences. This survey provides basic information about the type of individual who was encouraged to undergo VMMC through the postcard distribution. The average respondent was 28 years old and the oldest was 58. The youngest was 18, although this lower bound was required by the research ethics committee. In terms of marital status, 64 per cent were single and not living with a partner, while 14 per cent were married, and 21 per cent were unmarried and living with a partner. The average years of schooling completed were 11, and approximately half reported that they had been employed either in the last seven days (46 per cent) or the last 12 months (53 per cent). Although this was not explicitly encouraged, 10 per cent were already circumcised.

While 29 per cent have an immediate family member who is HIV positive, 77 per cent have never been tested for HIV. Although 6 per cent have had an STI in the past 12 months, 11 per cent have never had one.

Most reported that they were sexually active: 91 per cent had history of sexual intercourse and 80 per cent had had sex in the previous month. Ten per cent reported having multiple partners in the previous month and 52 per cent reported multiple partners in the previous year. For 4 per cent, their previous partner was a man. In the sample of respondents in this study, 57 per cent reported having used a condom the last time they had sex, although 77 per cent of those who were single and not cohabiting reported having used a condom in their last encounter. Sixty-seven per cent reported that they knew the HIV status of their most recent partner.

The responses demonstrate that HIV looms large in the expectations of the future among the respondents. When asked what fraction of Soweto residents are HIV

positive, the median response was between 50 and 60 per cent. Respondents were asked to what age they expected to live and to what age they would expect to live if there were no HIV. The median response for a world without HIV was between 85 and 90 years, and the median as-is was between 58 and 60 years.

6.2 Transport voucher for attending a VMMC consultation

With the simpler comparison, the group with the voucher was similarly likely to call or text (2.7 per cent compared to 2.4 per cent, p=0.567), more likely to visit a clinic for a consultation (3.3 per cent compared to 0.9 per cent, p=0.0002), and more likely to ultimately get circumcised (3.1 per cent compared to 0.6 per cent, p<0.0001), relative to the control group.

Comparing those who received postcards offering transportation vouchers with those that did not across all six groups yields similar results, although somewhat reduced. There was no statistically significant difference in take-up of the hotline (2.4 per cent compared to 1.7 per cent, p=0.086), the difference in consultations is 1.6 percentage points (2.8 per cent compared to 1.2 per cent, p=0.000), and the difference in take-up of the VMMC procedure is 1.5 percentage points (2.6 per cent compared to 1.1 per cent, p=0.000). Further details are provided in table 2.

These results tell a consistent story of a clear increase in take-up as a function of the promise of transportation reimbursement.

Table 2: Impact of financial compensation for transportation on take-up

(Outcome)	Take-up in group 2 (%)– Take-up in group 1 (%) N=2,000	Take-up in groups 2,4,6 (%)– Take-up in groups 1,3,5 (%) N=6,000
Texting/calling	0.4 (0.7)	0.6* (0.4)
Consultation	2.4*** (0.6)	1.6*** (0.4)
Circumcision	2.5*** (0.6)	1.5*** (0.3)

Note: *10 per cent, **5 per cent, ***1 per cent; Standard errors of the differences included in parentheses. The control-group means in the first column are 2.3, 0.9 and 0.6, respectively. In the second column, the comparison group means are 1.8, 1.3 and 1.1, respectively.

6.3 Information about partner preferences

Comparing the simplest version of the postcard with and without information about partners preferring circumcised men, no differences were seen between the two groups. The take-up rate for text messages and phone-calls (1.6 per cent compared with 2.3 per cent and p=0.26), consultation (1.1 per cent compared with 0.9 per cent, p=0.65) and the procedure (1.0 per cent compared with 0.6 per cent, p=0.32) are not significantly different. Comparing across all postcards with the information and without the information (groups 3 and 4 compared with groups 1 and 2) also yields small and statistically insignificant differences. Further details are provided in Table 3.

Table 3: Impact of information about partner preferences on take-up

(Outcome)	Take-up in group 3 (%)– Take-up in group 1 (%) N=2,000	Take-up in groups 3,4 (%)– Take-up in groups 1,2 (%) N=4,000
Texting/calling	-0.7 (0.6)	0.5 (0.5)
Consultation	0.2 (0.4)	0.2 (0.4)
Circumcision	0.4 (0.4)	0.2 (0.4)

Note: *10 per cent, **5 per cent, ***1 per cent; Standard errors of the differences included in parentheses. The control-group means in the first column are 2.3, 0.9 and 0.6, respectively. In the second column, the control-group means are 2.5, 2.1 and 1.9, respectively.

6.4 Advertising messages that link the VMMC decision to ideas of masculinity

Comparing groups 1 and 5 or groups 1 and 2 with groups 5 and 6 provides estimates of the impact of a postcard that framed the decision in terms of masculinity, by asking 'Are you tough enough?' Group 5 had a rate of response in text messages and calls of 1.4 per cent compared to 2.3 per cent in group 1. This difference is not statistically significant at traditional levels (p=0.13).

Looking at consultations and the procedure, those who received the basic postcard (without a promise of financial compensation) with the 'Are you tough enough?' message may have been more likely to visit a clinic for a VMMC consultation (1.8 per cent compared with 0.9 per cent, p=0.08) and were more likely to undergo the procedure (1.6 per cent compared with 0.6 per cent, p=0.03).

When the offer of compensation for transportation was included, the increased take-up among those with the 'Are you tough enough?' message disappears. Comparing groups 1 and 2 with groups 5 and 6 shows that overall, those who received the 'Are you tough enough?' message may have been less likely to call or text, although the difference is not statistically significantly different from zero (1.8 per cent compared with 2.5 per cent, p=0.10). The differences in take-up of the consultation and the procedure are both small and not statistically significantly different from zero. Details are presented in Table 4.

The figures suggest that the addition of the financial compensation for transportation *eliminates* the impact of the 'Are you tough enough?' message. Regressing the outcomes on indicators for this message, financial compensation, and the interaction between the two confirms this with a negative and statistically significant coefficient on the interaction terms with the consultation and the procedure are on the right hand-side. For the procedure, this coefficient is -1.8 per cent with a p-value of 0.037, and for the consultation, it is -1.7 per cent with a p-value of 0.062, which is not statistically significantly different from zero at the 5 per cent level. If the combination of the two interventions really generated lower uptake than either of the individual interventions,

we unfortunately did not design the experiment to test different explanations for why this would have happened. Perhaps the financial compensation undermined the identity framing or the framing message diluted the compensation offer. Future research can explore this further.

Table 4: Impact of 'Are you tough enough?' message on take-up

(Outcome)	Take-up in group 5 (%)– Take-up in group 1 (%) N=2,000	Take-up in groups 5, 6 (%)– Take-up in groups 1, 2 (%) N=4,000
Texting/calling	-0.9 (0.6)	-0.8 (0.5)
Consultation	0.9* (0.5)	-0.1 (0.4)
Circumcision	1.0** (0.5)	0.1 (0.4)

Note: *10 per cent, **5 per cent, ***1 per cent; Standard errors of the differences included in parentheses. The control-group means in the first column are 2.3, 0.9 and 0.6, respectively. In the second column, the control-group means are 2.5, 2.1 and 1.9, respectively.

6.5 Cost effectiveness

This intervention had very low costs. Combined with noticeable impacts on uptake, this implies that the cost-effectiveness is relatively high. Printing and distribution of each postcard cost approximately US$2, and the compensation cost US$10 per consultation. Refreshments for each consultation cost approximately US$1. The high conversion rate, whereby nearly all men who came for a consultation stayed for the procedure, and only needing to pay the latter two costs for those who chose to use the voucher, kept costs low. If the conversion rate had been lower, we may have seen a lower relative impact on take-up of the procedure and more people would need to be reimbursed for each circumcision undergone. The estimated effect on take-up of circumcision from the addition of the transport reimbursement voucher postcard relative to the basic postcard was 2.5 percentage points. This 2.5 percentage point difference in take-up implies one additional circumcision per 40 postcards (40 postcards * 0.025 circumcisions per postcard=1 circumcision). At US$2 per postcard, 40 postcards costs US$80.

The reimbursement of US$10 for transport and refreshments costing US$1 was given to each person who came in for the consultation. In our experiment, for every 31 who got circumcised, 33 came for the consultation. This gave an additional US$11.71 [(US$10+US$1)*(33/31)] per additional circumcision, which we rounded to US$12. This gave a cost per additional circumcision of US$92 (US$80+US$12). The fact that Soweto is a high HIV prevalence area implies that one VMMC generates approximately 1/15 to 1/5 of an HIV infection averted. Thus, we estimate that this intervention costs between US$460 and US$1,380 (US$92*5 and US$92*15) per HIV infection averted, excluding clinical costs.

The challenge postcard generated an increase in take-up of 1.0 percentage points over the pure control. Using the same calculation as above, this implies that 100

postcards would be necessary to generate each additional circumcision, which would cost US$200. With this intervention, the only compensation cost was the refreshments at US$1 per consultation. With a conversion rate in this group of 14 circumcisions for every 18 consultations, this cost was US$1.29 [US$1*(18/14)] per individual recruited, yielding a cost of US$201 per additional circumcision. This generates an estimate of US$1,005–3,015 (US$201*5 and US$201*15) per HIV infection averted.

The cost-effectiveness at scale of each message will depend on the cost of the method of advertising used. Methods of provision of information that can reach more people at a lower cost could substantially improve the cost-effectiveness. Postcards may be a relatively expensive way of reaching individuals. This study relied on postcards for the sake of research – without the ability to individually target messages, it would be impossible to compare take-up rates across messages. Billboards, radio or TV advertising, or other methods of reaching a large number of people could provide relatively more inexpensive means of increasing take-up.

7. Focus group discussions

To complement our analysis of the quantitative survey and administrative data, we conducted focus group discussions. Experienced facilitators organized two focus groups, one with those who had originally received postcards and had brought them to clinics for VMMC consultations and another with a similar group from the same area who had not previously seen the postcards. The first group included six participants, 2–4 of whom had received a postcard with the challenge message, none of whom had received the information postcard, and 3–5 of whom had received compensation offers. The second group included nine participants, some of whom reported having undergone VMMC. The focus of these discussions was to learn what men had previously heard about circumcision and how the receipt of the postcard had or would change their beliefs and/or their decision to circumcise. The guide for these discussions is included in appendix C.

Below, we describe a few of the key themes that arose that relate to the quantitative findings. We acknowledge that these two groups with 15 total participants are insufficient for drawing strong conclusions, but there are a few interesting patterns worth noting below.

7.1 Previous knowledge of VMMC

Both conversations suggested that without the postcards, the participants were generally well-informed about VMMC and HIV risk. In both conversations, the men, unprompted, brought up that they had heard both about reductions in the likelihood of becoming infected with HIV and other STIs. Only one of the 15 men said that he had not previously heard of the HIV risk reduction associated with circumcision. In both, men also discussed that they had heard that it could increase their desirability. Some mentioned that they had heard that circumcised men lasted longer or were able to keep cleaner.

7.2 Previous plans to get circumcised

From the quantitative analysis, it is unclear whether the postcards encouraged men who were or were not previously planning to undergo the procedure. One explanation for the high conversion rate, whereby very few men came for a consultation and then did not choose to be circumcised, is that the postcards provided a solution to procrastination. The focus group discussions suggested that many participants were already decided. Five of six who had gotten circumcised stated that they would have gotten circumcised without the postcard, although they may have waited a long time.

Others in the first focus group said that they were motivated to circumcise because they believed they would be able to appeal to partners or potential partners better. One stated, ‘My girlfriend is Xhosa; I always felt that there was a great need for me to get circumcised to keep pace with the guys from her homeland who would most likely be circumcised as part of their tradition’. Another said, ‘My brother was living proof that women do prefer a circumcised man. The ladies did love him and he never disappointed. I saw every reason to go and get circumcised’. These men had chosen to get circumcised, but they had not gotten the information postcard.

7.3 Expectations of postcards influencing decisions

The men in both groups were asked about which factors from the postcards did or would have influenced their decisions. Two men who had gotten postcards offering compensation said that they would not have done it without the compensation. However, other than this, the men in each group did not believe their decisions had been or would be changed by the promise of financial compensation. This is interesting in light of the consistent findings that the financial compensation did increase take-up.

Another interesting element of the focus group discussions was although the ‘Are you tough enough?’ postcard did appear to increase take-up, many of the participants believed that it would scare other men away. Interestingly, they pointed out that this might scare away other weaker men, but not the strong ones, and they all put themselves in the strong group (this includes the men in the second focus group discussion who had not all gotten circumcised). Despite universally identifying as tough enough to be one of those who would respond to this postcard, the men in both groups expected that this postcard would discourage men, whereas they expected the postcard providing information about women’s preferences for circumcised men would increase take-up.

The focus group discussions point to an important value of experimentation. The men in the discussions anticipated that the information treatment would be effective at increasing take-up, while the challenge treatment might scare participants away. Yet the experimental findings suggest that this was not the case. This inconsistency between the expectations of those in the focus group, who are reasonably representative of the targets of this study, and the experimental findings demonstrate the importance of rigorous evaluation and experimentation.

8. Discussion of results

There is a clear impact of the offer of even small financial compensation for transportation and take-up, which is not surprising, but it does provide further evidence that this could be a technique used more broadly to encourage health behaviours that are broadly advocated. Given the discussions in the focus groups, it is possible that one way that the compensation worked was by encouraging individuals to visit a clinic earlier than they otherwise would have. From a public health standpoint, encouraging earlier take-up is also quite beneficial since this reduces the amount of time an individual is at higher risk of infection, reducing overall incidence.

It is important to note that the compensation was only for the consultation, not for the procedure itself. Given that this was the case, one might be afraid that those who visited a clinic with a postcard offering reimbursement would be less likely to undergo the procedure.

The response to the 'Are you tough enough?' message presents more of a puzzle. First, in the simplest form, the inclusion of this message on the postcard increased take-up. The focus group discussions suggest that the mechanisms hypothesised may have contributed to the effectiveness of this message. Men reported that they identified as tough or strong and so they came to a clinic after seeing this message, even as they worried that other weaker men might be scared away by it. The puzzle comes from the combination of this message with the reimbursement. The quantitative analysis showed that combining 'Are you tough enough?' with the financial compensation for transportation may have reduced its strength. Hopefully future research can explore this further.

In order to reduce the possibilities of spillovers, outreach workers were instructed to distribute postcards at every fifth house. If recipients shared their postcards with those who had not gotten any postcard, and this person visited a clinic, this is not likely to demonstrate a spillover within the experimental sample because the second person was not in another experimental group. We acknowledge that this means that we cannot identify general equilibrium effects. We asked respondents where they had gotten the postcards they brought with them and 91 per cent said they had gotten it directly from the distributor, while 9 per cent said they had gotten it from a friend or family member. Importantly, the comparison presented in this study is across recipients of different postcards rather than with non-recipients, which reduces many concerns that complicate other studies.

8.1 Limitations

We did not collect baseline data. This decision was made for several reasons. First, this would have dramatically increased the cost of the experiment. Three field workers were able to distribute 6,000 postcards in just over one month. Conducting this many surveys would have taken an extraordinary amount of time, which would have been extremely costly. Finding the same individuals for follow-up would have been even more expensive. The second reason is that a baseline survey risks changing the behaviour of the respondents. Such survey effects have been shown to be strong (e.g. Zwane *et al*. 2011). This would have reduced the external validity of the study.

Postcard recipients may have chosen to receive VMMC at a clinic other than one of the participating CHAPS clinics, yet this is unlikely to have largely biased our results. Our study compares the relative effectiveness of postcards across study arms. Any measurement error introduced by VMMC take-up at nonparticipating clinics by postcard recipients would have had to vary systematically by study arm to bias the estimated effects in our study. Although, if the specific messages encouraged take-up, but not at CHAPS-affiliated clinics, we might have missed measuring a true impact.

9. Policy implications and future research

Building demand for VMMC depends critically on identifying what combination of price, information and framing interventions affect the VMMC decision. This project tested a range of different types of messages in order to provide evidence about which are most likely to encourage take-up of VMMC, and in particular, which are most effective in encouraging take-up among those who are most at risk for HIV infection thereby dramatically increasing the effectiveness of provision of VMMC to reduce HIV transmission rates. This is relevant for any organization or government considering message delivery mechanisms of all sorts (radio, TV, billboards, etc.). To be clear, this is speculation, as we are not aware of research demonstrating the comparability of effectiveness of these different methods of outreach. The use of postcards with attached vouchers allows the different messages to be targeted to individuals to facilitate measurement of the impact with a relatively smaller sample.

On the whole, the results suggest that offering small financial compensation and framing messages as part of mass VMMC campaigns may be a very cost-effective method of preventing new HIV infections. These two types of postcards generated large increases in VMMC take-up, relative to a control postcard. The cost of printing and distributing a postcard is relatively small, the R100 (US$10) compensation is disbursed only to men attending a VMMC consultation, and the vast majority of men attending a consultation complete the VMMC procedure. Evidence indicates that a single VMMC in a high HIV prevalence, low male circumcision setting averts between 1/5 and 1/15 of a new HIV infection (UNAIDS/WHO/SACEMA Expert Group 2009).

Our study has several implications for future research. First, future research should examine the effects of implementing these (or similar) advertising interventions at scale. Second, although ‘Are you tough enough?’ generated a substantial increase in VMMC take-up, future research may be able to identify more effective advertising messages. Third, future research should examine the effects of these interventions in other high HIV prevalence, low male circumcision settings.

To conclude, the results of our analysis yield several key policy implications. First, simple advertising of modest conditional compensation, in which the compensation is conditioned on the VMMC *consultation*, may generate a noticeable increase in take-up of the VMMC *procedure*. Second, framing the VMMC decision with a prompt, ‘Are you tough enough?’, following the ‘51 per cent to 76 per cent’ statement also generates a statistically significant increase in take-up of the VMMC procedure.

Appendix A: Sampling design

	Basic postcard	Basic postcard + '2/3 of women prefer'	Basic postcard + 'Are you tough enough?'
Refreshments offered	Group 1	Group 3	Group 5
Refreshments and 100 rand transportation reimbursement	Group 2	Group 4	Group 6

Note: Each group included 1,000 postcard recipients.

Appendix B: Postcard distribution protocol

Distributing postcards

1. Household selection method

Today you will distribute 60 postcards to 60 separate households. To determine which households receive a postcard, you will follow a random walk distribution method using the following steps.

Step 1: Begin at assigned intersection for that day of postcard distribution.

Step 2: Choose a direction to face.

Step 3: Flip a coin.

Step 4: If the coin landed heads, then you will walk **straight ahead**. If the coin landed tails, then you will **turn and walk to the right**.

- At the next intersection, heads means straight, and tails means left.
- If there are only two options, heads means left and tails means straight.
- If there are more than 3 options, flip a coin either between the two farthest to the left or the two farthest to the right.

Step 5: Flip a coin again.

Step 6: If the coin landed heads, then you will walk along the **left side of the street**. If the coin landed tails, then you will walk along the **right side of the street**.

Step 7: Walk until you arrive at the fifth house on the side of the road determined by the previous coin flip.

Step 8: Hand-deliver the pre-assigned envelope to a man (or a woman if a man is not present) at the fifth house.

Step 9: Complete the record sheet.

Step 10: Continue walking in same direction along same side of street. Stop after you have passed four houses and come to the fifth house. Repeat Step 9. If you come to an intersection before you arrive at the fifth house (even if it is a small intersection with only a side street), then repeat Steps 2 through 9.

Step 11: Repeat Step 10. Continue repeating until you have distributed all of the postcards for that day.

2. Script to read at each selected household

Knock on the door of the household selected using the 11-step procedure described above.

- If a child answers, ask to speak with an adult man. If no adult man is present, ask to speak with an adult woman. If there are no adults present, do not leave a postcard and continue walking.

- If an adult woman answers, ask to speak with an adult man. If no adult man is present, then continue speaking with adult woman.
- If a man or a man and a woman answer the door together, speak with the man.

Script: 'I am helping conduct a research study examining possible barriers to individuals choosing to receive voluntary medical male circumcision (VMMC). You have been randomly selected to receive a social marketing postcard. Please read this postcard. [HAND POSTCARD TO RECIPIENT.] Thank you very much for your time and assistance'.

After leaving the house and before proceeding to the next house, complete the record sheet documenting which envelope you left at the household as well as the address (i.e. house number, street name and area).

3. Additional Details

- After leaving the house and before proceeding to the next house, complete the record sheet documenting which envelope you left at the household.
- If a postcard recipient asks you for additional information about VMMC, please direct them to the phone number listed on the postcard.
- If no one is home or if there is only a child, continue on and start counting again. The neighbour's house will be 1, and continue until the next fifth house. Once you find this house, return to the every-fifth-house method described above.
- If you run into the end of a dead-end street, turn around and continue counting on the opposite side of the street.

Focus group discussion guides

Introductions:

- logistics (how long it will take)
- consent
- any questions?

Start recording.

Questions:

1. We want to discuss what information you have seen about circumcision and where this information comes from.
    a. What have you heard about the benefits and risks with circumcision?
    b. What are some of the sources for this information?
    c. Which of these factors were important for your decision?

Probes for discussion:

- stigma
- fear
- beliefs about risks

- information/lack of information
- financial costs
- missed days of work
- recovery period
- sanitation

2. Now we want to talk to you about the postcard that you brought with you to the clinic. How did this postcard change the information that you had, or change your beliefs about circumcision?

    a. One of the postcards asked ‘Are you tough enough?’ What did this make you think, or how did it make you feel? [Show the postcard.]

        i. For those who didn’t get this postcard, how would you have thought of it?
        ii. [After getting some responses, not before, probe for beliefs about masculinity and strength, associated with circumcision.]

Probes for discussion:

- sexual partners
- pain
- masculinity
- strength
- virility

    b. Another postcard included the message ‘2 out of 3 women in South Africa prefer circumcised men’. What did this make you think, or how did it make you feel? [Show the postcard.]

        i. For those who didn’t get this postcard, how would you have thought of it?
        ii. How much did you believe what was written on the postcard? Were you surprised by the message?

Probes for discussion:

- stigma
- recovery period
- sexual partners
- sexual pleasure
- sanitation

3. What else did you notice about the postcard that might have changed your thinking about circumcision?

Appendix C: Telephone questionnaire

1. **Telephone Number:**	☐☐☐☐☐☐☐
2. **Date of interview: (DDMMYY)**	☐☐☐☐☐☐
3. **Interviewer Name:**	_____
4. **Result of this interview**	**1 [ ] Complete** **2 [ ] Incomplete**
5. **If incomplete, please explain why:**	**1 [ ] Patient refused to complete the survey** **2 [ ] Other (explain: _____)**

Which phone got the message? Check one: [ ] A [ ] B [ ] C [ ] D [ ] E [ ] F

[Enumerator: Ask respondent to walk to location with more privacy.]

No.	Question	Answer
6.	How old are you? **(record age in years)**	☐☐
7.	What is your first language?	1 [ ] IsiXulu 2 [ ] IsiXhosa 3 [ ] Afrikaans 4 [ ] English 5 [ ] Other: _____
8.	What is the highest level of schooling that you have **attended**?	1 [ ] No schooling→ **SKIP TO Q11** 2 [ ] Primary 3 [ ] Secondary 4 [ ] College or University (Bachelor degree) 5 [ ] Graduate School
9.	At this level, how many years of schooling did you complete?	☐☐
10.	How many years have you attended school?	☐☐ *If completed less than one year at that level, record '00'*
11.	During the last seven days, did you work for a wage, salary, commission or any payment in kind, including	1 [ ] Yes → **SKIP TO Q13** 2 [ ] No

No.	Question	Answer
	doing paid domestic work, even if it was for only one hour?	
12.	If no, have you worked in the last 12 months?	1 [ ] Yes 2 [ ] No → **SKIP TO Q14**
13.	Approximately how much money did you earn in the last month?	_____ Rand
14.	What is your marital status? (Marital status referring to legal, traditional or common-law) *[One response only]*	1 [ ] Single 2 [ ] Not married, but living with a partner/boyfriend/girlfriend 3 [ ] Married, living with husband/wife 4 [ ] Married, NOT living with husband/wife 5 [ ] Divorced/Widowed 6 [ ] Other (specify) _____
15.	Where did you get the postcard with our SMS number?	1 [ ] From an outreach worker 2 [ ] From a family member 3 [ ] From a friend 4 [ ] Other: _____
16 a.	What is the number on the postcard?	[ ][ ][ ][ ] 99 [ ] DK
16 b.	There is a large letter on the postcard. What letter is it?	1 [ ] A 2 [ ] B 3 [ ] C 4 [ ] D 5 [ ] E 6 [ ] F 7 [ ] DK
17.	Are you circumcised?	1 [ ] Yes 2 [ ] No
18.	If yes, at what age were you circumcised?	[ ][ ]
19.	If yes, why did you get circumcised? *[Enumerator: Do not read responses.]*	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] To protect against HIV 5 [ ] To protect against STIs

No.	Question	Answer
		6 [ ] Ease of putting on condom 7 [ ] Sexual pleasure 8 [ ] Partner prefers circumcised penis 9 [ ] Other: _____
20.	If no, what factors would encourage you to want to be circumcised? *[Enumerator: Do not read responses.]*	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] To protect against HIV 5 [ ] To protect against STIs 6 [ ] Ease of putting on condom 7 [ ] Sexual pleasure 8 [ ] Partner prefers circumcised penis 9 [ ] Other: _____
21.	Which factors would discourage you from getting circumcised? *[Enumerator: Do not read responses.]*	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] Does not protect against HIV 5 [ ] Does not protect against STIs 6 [ ] Cost 7 [ ] Would reduce sexual pleasure 8 [ ] Pain 9 [ ] Too old 10 [ ] Does not like look 11 [ ] Other: _____
22.	Have you spoken to your partner about circumcision?	1 [ ] Yes 2 [ ] No 88 [ ] N/A
23.	Does your partner prefer that you be circumcised?	1 [ ] Yes 2 [ ] No → **SKIP TO Q25** 88 [ ] Not applicable 99 [ ] Don't know
24.	If yes, why?	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] To protect against HIV 5 [ ] To protect against STIs 6 [ ] Ease of putting on condom 7 [ ] Sexual pleasure 8 [ ] Partner prefers circumcised penis

No.	Question	Answer
		9 [ ] Other: _____
25.	If no, why not?	1 [ ] Against tradition 2 [ ] Against religion 3 [ ] Not hygienic 4 [ ] Does not protect against HIV 5 [ ] Does not protect against other STIs 6 [ ] Cost 7 [ ] Would reduce sexual pleasure 8 [ ] Pain 9 [ ] Too old 10 [ ] Does not like look 11 [ ] Other: _____
26.	If you are not circumcised, are you interested in getting circumcised?	1 [ ] Yes 2 [ ] No
27.	If yes, why?	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] Protects against HIV 5 [ ] Protects against other STIs 6 [ ] Sexual performance 7 [ ] Like look 8 [ ] Other: _____
28.	If no, why not?	1 [ ] Against tradition 2 [ ] Against religion 3 [ ] Not hygienic 4 [ ] Does not protect against HIV 5 [ ] Does not protect against other STIs 6 [ ] Cost 7 [ ] Would reduce sexual pleasure 8 [ ] Pain 9 [ ] Too old 10 [ ] Does not like look 11 [ ] Other: _____
29.	Please do not tell me the result of a test, but have you ever been tested for HIV? If yes, how many times?	1 [ ] Yes 2 [ ] No

[Now I am going to ask you some questions about sex. The answers you give are very important for helping to design better HIV and AIDS campaigns for your community and we appreciate your help. We know that some people have had sexual intercourse and some have sexual intercourse with more than one person. Please feel comfortable to answer questions honestly; you will not be judged and there is no right or wrong answer. Your answers are confidential and will not be known by anyone else.]

No.	Question	Answer
30.	Have you ever had sex with anyone? (that is to say when the penis was in the vagina/anus)	1 [ ] Yes 2 [ ] No → **SKIP TO Q39**
31.	How old were you when you first had sex with someone (that is to say when the penis was in vagina/anus)? ***[NOTE: If respondent is unsure, they can estimate approximate age]***	[ ][ ]
32.	Have you had sex with anyone within the past 12 months? (that is to say when the penis was in vagina/anus)	1 [ ] Yes 2 [ ] No → **SKIP TO Q35**
33.	With how many DIFFERENT partners have you had sex in THE PAST 12 MONTHS?	[ ][ ]
34.	With how many DIFFERENT partners have you had sex in THE PAST MONTH?	[ ][ ]
35.	Did you use a condom the last time you had sex?	1 [ ] Yes 2 [ ] No
36.	Have you ever refused sex because there was no condom available?	1 [ ] Yes 2 [ ] No
37.	Have you ever had sex while drunk or high?	1 [ ] Yes 2 [ ] No
38.	Have you ever paid someone to perform a sexual act?	1 [ ] Yes 2 [ ] No

No.	Question	Answer
39.	To what age do you expect to live?	[ ][ ][ ]
40.	Consider a typical adult male in your community who is the same age as you. To what age do you expect him to live?	[ ][ ][ ]
41.	If someone were to offer you 200 Rand today or 400 Rand exactly one month from now, which one would you prefer?	1 [ ] 200 Rand today 2 [ ] 400 Rand in one month

Appendix D: Clinic questionnaire

1. **Postcard Number:**	☐☐☐☐
2. **Postcard Type**	**1 [ ] A** **2 [ ] B** **3 [ ] C** **4 [ ] D** **5 [ ] E** **6 [ ] F**
3. **Date of interview: (DDMMYY)**	☐☐☐☐☐☐
4. **Clinic Name:** _____	
5. **Counsellor Name:**	_____
6. **Requested permission to record the result of the HIV/STI test (separate form)**	**1 [ ] Permission granted** **2 [ ] Refused** **3 [ ] Not asked (explain: _____)**
7. **Result of this interview**	**1 [ ] Complete** **2 [ ] Incomplete**
8. **If incomplete, please explain why:**	**1 [ ] Patient refused to complete the survey** **2 [ ] Other (explain: _____)**

I would like to ask you some background questions:

No.	Question	Answer
9.	How old are you? **(record age in years)**	☐☐
10.	For how many years have you lived in Soweto?	☐☐
11.	What is your first language?	1 [ ] IsiXulu 2 [ ] IsiXhosa 3 [ ] Afrikaans 4 [ ] English 5 [ ] Other: _____
12.	What is the highest level of schooling that you have **attended**?	1 [ ] No schooling→ **SKIP TO Q15** 2 [ ] Primary

<table>
<tr><th>No.</th><th>Question</th><th>Answer</th></tr>
<tr><td></td><td></td><td>3 [ ] Secondary
4 [ ] College or University (Bachelor degree)
5 [ ] Graduate School</td></tr>
<tr><td>13.</td><td>At this level, how many years of schooling did you complete?</td><td>☐☐</td></tr>
<tr><td>14.</td><td>In total, for how many years have you attended school?</td><td>☐☐
If completed less than one year at that level, record ‘00’</td></tr>
<tr><td>15.</td><td>During the last seven days, did you work for a wage, salary, commission or any payment in kind; including doing paid domestic work, even if it was for only one hour?</td><td>1 [ ] Yes→ SKIP TO Q17
2 [ ] No</td></tr>
<tr><td>16.</td><td>If no, have you worked in the last 12 months?</td><td>1 [ ] Yes
2 [ ] No → SKIP TO Q18</td></tr>
<tr><td>17.</td><td>Approximately how much money did you earn in the last month?</td><td>_____ Rand</td></tr>
<tr><td>18.</td><td>Let's talk about the household items in your housing unit. Do you, or the people living in the same housing unit with you, have or own any of the following items or services in your housing unit?

[READ ALL ITEMS ALOUD]
[MARK ALL THAT APPLY]</td><td>
<table>
<tr><th>ITEMS</th><th>Y</th><th>N</th><th>DK</th></tr>
<tr><td>a. Electricity</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
<tr><td>b. Bed</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
<tr><td>c. Mattress</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
<tr><td>d. Television</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
<tr><td>e. Radio</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
<tr><td>f. Refrigerator</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
<tr><td>g. Telephone (fixed or mobile)</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
<tr><td>h. Bicycle</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
<tr><td>i. Motorcycle/ scooter</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
<tr><td>j. Car or truck</td><td>1[ ]</td><td>2[ ]</td><td>9[ ]</td></tr>
</table>
</td></tr>
<tr><td>19.</td><td>What is your marital status? (Marital status referring to legal, traditional or common-law)

[ONE RESPONSE ONLY]</td><td>1 [ ] Single
2 [ ] Not married, but living with a partner/boyfriend/girlfriend
3 [ ] Married, living with husband/wife
4 [ ] Married, NOT living with husband/wife
5 [ ] Divorced/Widowed</td></tr>
</table>

No.	Question	Answer
		6 [ ] Other (specify) _____
20.	How many children do you have?	☐☐
21.	Where did you get the postcard that you brought with you today?	1 [ ] From an outreach worker 2 [ ] From a family member 3 [ ] From a friend 4 [ ] Other: _____
22.	Are you circumcised?	1 [ ] Yes 2 [ ] No → **SKIP TO Q25**
23.	If yes, at what age were you circumcised?	☐☐
24.	If yes, why did you get circumcised? *[Enumerator: Do not read responses.]*	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] To protect against HIV 5 [ ] To protect against STIs 6 [ ] Ease of putting on condom 7 [ ] Sexual pleasure 8 [ ] Partner prefers circumcised penis 9 [ ] Other: _____ → **SKIP TO Q27**
25.	If no, what factors would encourage you to want to be circumcised? *[Enumerator: Do not read responses.]*	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] To protect against HIV 5 [ ] To protect against STIs 6 [ ] Ease of putting on condom 7 [ ] Sexual pleasure 8 [ ] Partner prefers circumcised penis 9 [ ] Other: _____
26.	Which factors would discourage you from getting circumcised? *[Enumerator: Do not read responses.]*	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] Does not protect against 5 [ ] Does not protect against STIs

No.	Question	Answer
		6 [ ] Cost 7 [ ] Would reduce sexual pleasure 8 [ ] Pain 9 [ ] Too old 10 [ ] Does not like look 11 [ ] Other: _____
27.	Have you spoken to your partner about circumcision?	1 [ ] Yes 2 [ ] No 88 [ ] N/A
28.	Does your partner prefer that you be circumcised?	1 [ ] Yes 2 [ ] No→ **SKIP TO Q30** 88[ ] Not applicable 99 [ ] Don't know
29.	If yes, why?	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] Protects against HIV 5 [ ] Protects against other STIs 6 [ ] Sexual performance 7 [ ] Likes look 8 [ ] Other: _____
30.	If no, why not?	1 [ ] Against tradition 2 [ ] Against religion 3 [ ] Not hygienic 4 [ ] Does not protect against HIV 5 [ ] Does not protect against other STIs 6 [ ] Cost 7 [ ] Would reduce sexual pleasure 8 [ ] Pain 9 [ ] Too old 10 [ ] Does not like look 11 [ ] Other: _____
31.	If you are not circumcised, are you interested in getting circumcised?	1 [ ] Yes 2 [ ] No→ **SKIP TO Q33** 3 [ ] Not applicable 9 [ ] DK
32.	If yes, why?	1 [ ] Tradition 2 [ ] Religion 3 [ ] Hygiene 4 [ ] Protects against HIV 5 [ ] Protects against other STIs

No.	Question	Answer
		6 [ ] Sexual performance 7 [ ] Like look 8 [ ] Other: _____
33.	If no, why not?	1 [ ] Against tradition 2 [ ] Against religion 3 [ ] Not hygienic 4 [ ] Does not protect against HIV 5 [ ] Does not protect against other STIs 6 [ ] Cost 7 [ ] Would reduce sexual pleasure 8 [ ] Pain 9 [ ] Too old 10 [ ] Does not like look 11 [ ] Other: _____
34.	Please do not tell me the result of a test, but have you ever been tested for HIV?	1 [ ] Yes 2 [ ] No → **SKIP TO Q36**
35.	If yes, how many times? [If unsure, ask for a guess]	☐☐
36.	Do not tell me who they are, but is there anyone in your immediate family (mother, father, brother, sister, husband, wife, son, daughter) who is HIV positive, meaning infected with HIV?	1 [ ] Yes 2 [ ] No 99 [ ] Don't know
37.	During the last 12 months, have you had a disease which you got through sexual contact?	1 [ ] Yes 2 [ ] No
38.	Sometimes men experience an abnormal discharge from their penis. During the last 12 months, have you had an abnormal discharge from your penis?	1 [ ] Yes 2 [ ] No
39.	Sometimes men have a sore or ulcer near their penis. During the last 12 months, have you had a sore or ulcer near your penis?	1 [ ] Yes 2 [ ] No

No.	Question	Answer
40.	Have you ever been treated for an STI or a disease which you got through sexual contact?	1 [ ] Yes 2 [ ] No

Now I am going to ask you some questions about sex. We know that some people have had sexual intercourse and some have sexual intercourse with more than one person. Please feel comfortable to answer questions honestly; you will not be judged and there are no right or wrong answers. Your answers are confidential and will not be known by anyone else.

No.	Question	Answer
41.	Have you ever had sex with anyone? (that is to say when the penis was in the vagina/anus)	1 [ ] Yes 2 [ ] No → **SKIP TO Q58**
42.	How old were you when you first had sex with someone (that is to say when the penis was in vagina/anus)? ***[NOTE: If respondent is unsure, they can estimate approximate age]***	[ ][ ]
43.	Have you had sex with anyone within the past 12 months? (that is to say when the penis was in vagina/anus)	1 [ ] Yes 2 [ ] No→ **SKIP TO Q46**
44.	With how many DIFFERENT partners have you had sex in <u>THE PAST 12 MONTHS</u>?	[ ][ ]
45.	With how many DIFFERENT partners have you had sex in <u>THE PAST MONTH</u>?	[ ][ ]
46.	Did you use a condom the last time you had sex?	1 [ ] Yes 2 [ ] No
I would like to ask you a few questions about the person that you most recently had sex with. We do not need to know who she/he is, so let's just use his/her initials: **INSTRUCTION: NEED TO REPEAT DEFINITION TO ENSURE SEX TOOK PLACE** **<u>[**ONLY ASK IF HAD VAGINAL OR ANAL SEX**]</u>**		
47.	Is this person a man or a woman?	1 [ ] Male 2 [ ] Female

No.	Question	Answer
48.	How would you describe your relationship with him/her? **[READ OUT]**	1 [ ] Married 2 [ ] Living together, but not married 3 [ ] Main partner, but not living together 6 [ ] Someone I recently met 7 [ ] One-night encounter 8 [ ] Other [Specify] _____
49.	Are your sexual activities confined to this one partner only?	1 [ ] Yes 2 [ ] No
50.	Do you think he/she currently has other sexual partners?	1 [ ] Yes 2 [ ] No 99 [ ] Don't know
51.	Did you use contraception (something to prevent pregnancy) the most recent time you had sex with this person?	1 [ ] Yes 2 [ ] No
52.	During the last time you had sex with this person, what – if anything - did you do to prevent infection from HIV? ***[MULTIPLE RESPONSES POSSIBLE]*** ***[DO NOT READ OUT]***	0 [ ] Nothing 1 [ ] Used condoms 2 [ ] I am faithful and trust this partner not to cheat (have sex with others) 3 [ ] My partner and I know our HIV status 4 [ ] Stopped before ejaculation (withdrawal) 5 [ ] Had thigh sex 6 [ ] Had anal sex 7 [ ] Had oral sex 8 [ ] Used contraceptives (pill, IUD/loop, injection, etc.) 9 [ ] Use the natural method / safe period / rhythm method 10 [ ] Other (specify)_____
53.	I don't want you to tell me what it is, but do you know this person's HIV status?	1 [ ] Yes 2 [ ] No → **SKIP TO Q55**
54.	How do you know this person's status? ***[DO NOT READ OUT]***	1 [ ] The way they look 2 [ ] The person told me 4 [ ] Someone else told me 5 [ ] I saw their HIV test results 6 [ ] Other (specify) _____
55.	Have you ever refused sex because there was no condom available?	1 [ ] Yes 2 [ ] No
56.	Have you ever had sex while drunk or high?	1 [ ] Yes 2 [ ] No

No.	Question	Answer
57.	Have you ever paid someone to perform a sexual act?	1 [ ] Yes 2 [ ] No

I am now going to ask you some questions about HIV & AIDS and other issues.

58. Can you become infected with HIV from any of the following:

ITEMS	Y	N	DK
a. Insect bite	1[ ]	2[ ]	9[ ]
b. Communion Cup	1[ ]	2[ ]	9[ ]
c. Giving blood	1[ ]	2[ ]	9[ ]
d. Having a blood test	1[ ]	2[ ]	9[ ]
e. Shaking hands with someone who is HIV positive	1[ ]	2[ ]	9[ ]
f. Kissing someone who is HIV positive	1[ ]	2[ ]	9[ ]
g. Eating food/drink prepared by someone who is HIV positive	1[ ]	2[ ]	9[ ]
h. Sharing a needle with someone who is HIV positive	1[ ]	2[ ]	9[ ]
i. Oral sex with someone who is HIV positive	1[ ]	2[ ]	9[ ]

How much do you agree with the following statements? For each statement, you can tell me that you strongly disagree, somewhat disagree, feel neutral, somewhat agree, or strongly agree.

[INTERVIEWER: Read out all.]

59.	When you learn that you have HIV, your life is over.	1 [ ] Strongly disagree 2 [ ] Somewhat disagree 3 [ ] Neutral 4 [ ] Somewhat agree 5 [ ] Strongly agree
60.	People can lower their risk of HIV by changing their health behaviour/ sexual behaviour.	1 [ ] Strongly disagree 2 [ ] Somewhat disagree 3 [ ] Neutral 4 [ ] Somewhat agree 5 [ ] Strongly agree
61.	I would be embarrassed to be seen with someone who everyone knows has HIV/AIDS.	1 [ ] Strongly disagree 2 [ ] Somewhat disagree 3 [ ] Neutral 4 [ ] Somewhat agree 5 [ ] Strongly agree

No.	Question	Answer
62.	Having several sexual partners at the same time makes it more likely that a person will be infected with HIV.	1 [ ] Strongly disagree 2 [ ] Somewhat disagree 3 [ ] Neutral 4 [ ] Somewhat agree 5 [ ] Strongly agree
63.	A woman has a right to say no to sex if she does not want it.	1 [ ] Strongly disagree 2 [ ] Somewhat disagree 3 [ ] Neutral 4 [ ] Somewhat agree 5 [ ] Strongly agree
64.	To prevent getting HIV you have to use condoms every time you have sex with someone	1 [ ] Strongly disagree 2 [ ] Somewhat disagree 3 [ ] Neutral 4 [ ] Somewhat agree 5 [ ] Strongly agree
65.	Sex with a condom is less likely to result in HIV infection than sex without a condom.	1 [ ] Strongly disagree 2 [ ] Somewhat disagree 3 [ ] Neutral 4 [ ] Somewhat agree 5 [ ] Strongly agree
66.	Circumcision reduces the likelihood of acquiring HIV.	1 [ ] Strongly disagree 2 [ ] Somewhat disagree 3 [ ] Neutral 4 [ ] Somewhat agree 5 [ ] Strongly agree
67.	If 100 people who were uninfected with HIV each had sex once with an infected person, how many do you think would become infected with HIV?	_____
68.	What percentage of Soweto residents are HIV positive. Provide your best guess.	[ ][ ]
Now, I am going to ask you some questions about what you might expect to happen in the future. Sometimes the future is difficult to know, but I would like to know your best guess.		
69.	Suppose there was no HIV/AIDS in the community. To what age would you expect to live?	[ ][ ][ ]
70.	To what age do you expect to live?	[ ][ ][ ]

No.	Question	Answer
71.	What do you think is the probability that you will live to be more than 75?	1 [ ] Very likely 2 [ ] Somewhat likely 3 [ ] Neutral 4 [ ] Unlikely 5 [ ] Very unlikely
72.	Consider a typical adult male in your community who is the same age as you. To what age do you expect him to live?	[ ][ ][ ]
73.	What is the most likely reason you may become sick and/or die? *[Enumerator: Do not read out loud]*	1 [ ] HIV/AIDS 2 [ ] other diseases 3 [ ] not enough food to eat 4 [ ] accident 5 [ ] Other: _____
74.	If 100 babies were born today, how many do you think would live past age 75?	_____
75.	If someone were to offer you 200 Rand today or 400 Rand exactly one month from now, which one would you prefer?	1 [ ] 200 Rand today 2 [ ] 400 Rand in one month

Appendix E: Pre-analysis plan

The pre-analysis plan, as submitted to the AEA trial registry, can be found at: https://www.socialscienceregistry.org/trials/419

References

Baird, S, Chirwa, E, McIntosh, C and Özler, B, 2010. The short-term impacts of a schooling conditional cash transfer program on the sexual behavior of young women. *Health Economics*, 19(S1), pp.55−58.

Barham, T and Maluccio, J, 2009. Eradicating diseases: the effect of conditional cash transfers on vaccination coverage in rural Nicaragua. *Journal of Health Economics*, 28(3), pp.611−21.

Bertrand, M, Karlan, D, Mullainathan, S, Shafir, E and Zinman, J, 2010. What's advertising content worth? Evidence from a consumer credit marketing field experiment. *Quarterly Journal of Economics*, 125(1), pp.263−305.

Department of Health, Medical Research Council, OrcMacro, 2007. South Africa Demographic and Health Survey 2003. Pretoria: Department of Health.

Fernald, L, Gertler, P and Neufeld, L, 2009. 10-year effect of Oportunidades, Mexico's conditional cash transfer programme, on child growth, cognition, language, and behaviour: a longitudinal follow-up study. *The Lancet*, 374(9706), pp.1997−2005.

Gerber, A, Green, D and Larimer, C, 2008. Social pressure and voter turnout: evidence from a large-scale field experiment. *American Political Science Review,* 102(01), p.33.

Herman-Roloff, A, Llewellyn, E, Obiero, W, Agot, K, Ndinya-Achola, J, Muraguri, N and Bailey, R, 2011. Implementing voluntary medical male circumcision for HIV prevention in Nyanza Province, Kenya: lessons learned during the first year. *PLoS ONE*, 6(4), p.e18299.

Hoffman, J, Arendse, K, Larbi, C, Johnson, N and Vivian, L, 2015. Perceptions and knowledge of voluntary medical male circumcision for HIV prevention in traditionally non-circumcising communities in South Africa. *Global Public Health*, 10(5-6), pp.692−707.

Kaunda, B, Mathanga, D, Mkhata, A and Pool, R, 2012. Couples' voices on medicalized male circumcision (MMC) polemics and masculinities in southern Malawi: an anthropological study. *19th International AIDS Conference*.

Lagarde, M, Haines, A and Palmer, N, 2007. Conditional cash transfers for improving uptake of health interventions in low- and middle-income countries. *JAMA*, 298(16), p.1,900.

Leroy, J, Ruel, M and Verhofstadt, E, 2009. The impact of conditional cash transfer programmes on child nutrition: a review of evidence using a programme theory framework. *Journal of Development Effectiveness*, 1(2), pp.103−129.

Lissouba, P, Taljaard, D, Rech, D, Dermaux-Msimang, V, Legeai, C, Lewis, D, Singh, B, Puren, A and Auvert, B, 2011. Adult male circumcision as an intervention against HIV: An operational study of uptake in a South African community (ANRS 12126). *BMC Infectious Diseases*, 11(1), p.253.

Plotkin, M, Mziray, H, Kuver, J, Prince, J, Mahler, K and Hally, C, 2011. *Embe Halifjamenywa: The unpeeled mango – A qualitative assessment of views and preferences concerning voluntary medical male circumcision in Iringa Region, Tanzania.* [online] Available from: <http://www.mchip.net/sites/default/files/The%20Unpeeled%20Mango%20-%20Final%20Report%202011.pdf> [Accessed 2 Dec. 2015].

Thirumurthy, H, Masters, S, Rao, S, Bronson, M, Lanham, M, Omanga, E, Evens, E and Agot, K, 2014. Effect of providing conditional economic compensation on uptake of voluntary medical male circumcision in Kenya. *JAMA*, 312(7), p.703.

Tversky, A and Kahneman, D, 1981. The framing of decisions and the psychology of choice. *Science*, 211(4481), pp.453−458.

Westercamp, N and Bailey, R, 2007. Acceptability of male circumcision for prevention of HIV/AIDS in Sub-Saharan Africa: a review. *AIDS Behav*ior 11(3), pp.341−355.

Westercamp, N, Bailey RC, Agot, K and Ndinya-Achola, JO, 2010. *Factors associated with the circumcision decision: baseline results from the risk compensation study in Nyanza Province, Kenya.* Nyanza Reproductive Health Society and Male Circumcision Consortium.

World Health Organization (2015). *WHO Progress Brief - Voluntary medical male circumcision for HIV prevention in priority countries of East and Southern Africa*. [online] Available from: <http://www.who.int/hiv/topics/malecircumcision/male-circumcision-info-2014/en/#> [Accessed 2 Dec. 2015].

World Health Organization. (2012). *WHO Statistical Information System.*

Zwane, A, Zinman, J, Van Dusen, E, Pariente, W, Null, C, Miguel, E, Kremer, M, Karlan, D, Hornbeck, R, Giné, X, Duflo, E, Devoto, F, Crepon, B and Banerjee, A, 2011. Being surveyed can change later behavior and related parameter estimates. *Proceedings of the National Academy of Sciences*, 108(5), pp.1821−1826.

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The use of peer referral incentives to increase demand for voluntary medical male circumcision in Zambia. 3ie Impact Evaluation Report 52. Zanolini, A, Bolton, C, Lyabola, LL, Phiri, G, Samona, A, Kaonga, A and Thirumurthy, H, 2016.

Using smartphone raffles to increase demand for voluntary medical male circumcision in Tanzania, 3ie Impact Evaluation Report 51. Mahler, H and Bazant, E, 2016

Voluntary medical male circumcision uptake through soccer in Zimbabwe, 3ie Impact Evaluation Report 50. DeCelles, J, Kaufman, Z, Bhauti, K, Hershow, R, Weiss, H, Chaibva, C, Moyo, N, Braunschweig, E, Mantula, F, Hatzold, K and Ross, D, 2016.

Measuring the impact of SMS-based interventions on uptake of voluntary medical male circumcision in Zambia, 3ie Impact Evaluation Report 49. Leiby, K, Connor, A, Tsague, L, Sapele, C, Koanga, A, Kakaire, J and Wang, P, 2016.

Assessing the impact of delivering messages through intimate partners to create demand for voluntary medical male circumcision in Uganda. 3ie Impact Evaluation Report 48. Semeere, AS, Bbaale, DS, Castelnuovo, B Kiragga, A, Kigozi, J, Muganzi, A, Kambugu, A and Coutinho, AG, 2016.

Optimising the use of economic interventions to increase demand for voluntary medical male circumcision in Kenya, 3ie Impact Evaluation Report 47. Thirumurthy, H, Omanga, E, Rao, SO, Murray, K, Masters, S and Agot, K, 2016.

Estimating the impact and cost-effectiveness of expanding access to secondary education in Ghana 3ie Impact Evaluation Report 42. Dupas, P, Duflo, E and Kremer, M, 2015

The impact of earned and windfall cash transfers on livelihoods and conservation in Sierra Leone, 3ie Impact Evaluation Report 46. Bulte, E, Conteh, B, Kontoleon, A, List, J, Mokuwa, E, Richards, P, Turley, T and Voors, M (2016)

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Studies show voluntary medical male circumcision (VMMC) reduces HIV transmission by between 51 and 76 percent. However, takers for this fully subsidised service remain low in South Africa. To provide evidence on the barriers to VMMC take-up, a randomised controlled field experiment was conducted in Soweto, South Africa.

The intervention consisted of distributing postcards with a compensation offer, information on a possibly unknown benefit of VMMC and/or a framing message to households. Results show that a modest compensation offer conditioned on the VMMC consultation increased take up of the VMMC procedure. Adding a challenge, 'Are you tough enough?' to the basic postcard also increased take up of the VMMC procedure. In contrast to the compensation and the challenge posed, there was no statistically significant effect of providing information about a possible unknown benefit of VMMC on its take up.

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