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Measurement of the Effectiveness of Break the Chains 2015

Main results and recommendations on behalf of the Federal Office of Public Health and the Swiss Aids Federation

Kathrin Frey*, Stéphanie Locicero^x, Patricia Blank⁺, Raphaël Bize^x, Matthias Schwenkglens⁺, Daniel Kübler*

* Department of Political Science, University of Zurich

⁺ Epidemiology, Biostatistics and Prevention Institute, University of Zurich

^x Centre for Public Health Practice and Evaluation, Institut universitaire de médecine sociale et préventive, CHUV

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Contact address: Dr. Kathrin Frey, Department of Political Science, University of Zurich Affolternstrasse 56, 8050 Zurich. Email: kfrey@ipz.uzh.ch

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1 Introduction

1.1 Background

The Federal Commission for Sexual Health 2012-2016 mandated its Surveillance Working Group to improve the scientific evidence bases for the implementation of the National Programme on HIV and other sexually transmitted infections (STI) 2011-2017 (NPHS). In particular, the Surveillance Working Group was asked to further develop the idea of "Third Generation Surveillance" (TGS). The Federal Office of Public Health (FOPH, 2010: 114) had introduced this idea and asked the Commission for scientific support. TGS expresses that the current system of "Second Generation Surveillance" (SGS)¹ should be considerably extended and provide not only relevant epidemiological and behavioral information but also evidence and tools for policy-makers to assess the effectiveness and efficiency of policy interventions in the field of HIV and other STIs. Against this background, the Surveillance Working Group decided in September 2014 to initiate the present study. It aimed to advance the measurements of the effects of HIV/STI prevention and generate effectiveness data usable for an economic evaluation (Surveillance Working Group 2012, 2013, 2014, 2015, Frey et al. 2013).

As men having sex with men (MSM) are most affected by HIV in Switzerland, the advancement of the evidence base for prevention interventions targeting this population group enjoys high priority. Therefore, the present study focuses on the key primary prevention intervention for MSM in Switzerland: "Break the Chains" (BTC). This community action campaign was designed by the FOPH and the Swiss Aids Federation (SAF) and is implemented each spring since 2012. BTC aims to interrupt the HIV transmission chains among MSM and places emphasis on community mobilization once a year, i.e. March to May. The BTC campaign is part of the NPHS 2011-2017 and embedded in an "urgent action plan" (FOPH 2011). The "urgent action plan" included further interventions and defined three action fields, 1) "lessen the HIV transmission during the primary HIV infection phase and decrease the community viral load" (key intervention: BTC campaign), 2) "Reduce the time between the infection and the diagnosis" (key intervention: Stop Syphilis campaign), and 3) "Reduce the HIV transmission after the diagnosis" (key interventions: Queer+, #undetectable").

The present study concentrates on the effects of the fourth edition of BTC: The campaign implemented in spring 2015. The study is thus not providing any information on other interventions of the "urgent action plan" or their interaction.

The Surveillance Working Group supported the present study with its expertise and mandated its scientific secretary to initiate, coordinate and contribute to such a study. The study was funded by the FOPH and conducted by a multidisciplinary team of researchers from the University of Zurich (Department of Political Science and Epidemiology, Biostatistics and Prevention Institute) and the University of Lausanne (Center for Public Health Practice and Evaluation (CEESAN), Institut universitaire de médecine sociale et préventive, (IUMSP), CHUV).

The study was accompanied by an advisory board that included members of the Surveillance Working Group, external experts and key stakeholders of the FOPH and the SAF: Prof. Nicola Low (co-leader the Surveillance Working Group, Prof. Rolf Rosenbrock (member of the Surveillance Working Group), Prof. Françoise Dubois-Aber (CEESAN, IUMSP, CHUV), Roger Staub (FOPH), Steven Derendinger

¹ Switzerland is following the WHO and UNAIDS (2000, 2013) recommendations for Second Generation Surveillance and routinely collects and analyzes evidence on relevant epidemiological and behavioral trends (ECDC 2009; Jeannin et al. 2010).

(FOPH), Dr. Axel Jeremias Schmidt (FOPH/ Sigma Research, London School of Hygiene & Tropical Medicine) and Andreas Lehner (SAF).

1.2 Purpose of the study and research questions

The present study contributes to the research on the effectiveness of HIV prevention. The study aimed to inform HIV prevention targeting MSM but also to advance the idea of “Third Generation Surveillance”. The study dealt with the following three main research questions:

1. How to assess the implementation of the BTC 2015 campaign?
2. What were the costs of the BTC 2015 campaign?
3. What were the effects of the BTC 2015 campaign on MSM?

The present report presents the key characteristics of the study, the main results and the policy recommendations on behalf of the FOPH and the SAF. More detailed information on the measurements and results are given in the individual reports on the three research questions.² How this study can inform the further development of the “Third Generation Surveillance” system will be discussed and addressed by the Surveillance Working Group in a separate report.

1.3 Study design

BTC is an annual campaign implemented in Switzerland since 2012. While its first edition was evaluated (Lociciro et al. 2013), its second and third editions were not followed by an evaluation. The present study concentrates on the fourth edition of BTC in 2015 and used a pragmatic theory-driven evaluation approach (Chen 2005). This approach included the elaboration of an action model of the campaign six months before the BTC campaign was run in spring 2015. The model systematically describes the expectations of the responsible actors how the campaign concept was intended to work. In particular, it links planned activities to the intended cognitive and behavioral effects among the target population. Informed by this model, measures were derived to assess the implementation, the resources spent for the campaign and the effects on the target population.

A mixed method design was applied (combination of qualitative and quantitative methods). Table 1 provides an overview on the methods, data sources and sample sizes. It highlights that we conducted interviews and online surveys among the actors that (potentially) contributed to the implementation of BTC. This data was collected in June to July 2015 after the campaign. Additionally, we obtained and analyzed documents and monitoring data on the implementation and resources spent for BTC 2015. The measurements of the effects among the MSM target population included repeated cross sectional surveys. The pre- and post-survey rely on a self-selected sample of MSM and were conducted as Internet surveys. The survey during the campaign concentrates on data gather by the voluntary counselling and testing sites (VCT) offering low price HIV tests in May 2015 for MSM. These sites routinely use a self-administered risk-assessment tool “BerDa” (Beratungsleitfaden und Datenverwaltungssystem) which can be filled in by their clients before the interviews. In May 2015 during test promotion a few

² Kathrin Frey, Christopher Goodman, Elodie Panoussopoulos and Daniel Kübler (2015): Analysis of the implementation of Break the Chains 2015. Zürich: Department of Political Science, University of Zurich. Patricia R. Blank and Matthias Schwenkglens (2016): Resources spent for Break the Chains (BTC) 2015. Zurich: Epidemiology, Biostatistics and Prevention Institute, University of Zurich. Stéphanie Lociciro and Raphaël Bize (2015): Effects of the 2015 “Break the Chains” campaign on the gay community and on the MSM individuals. Short report. Lausanne: Institut universitaire de médecine sociale et préventive IUMSP.

questions about the campaign were added to this tool (for more details on methods we refer to the reports cited in footnote 2).

Table 1: Overview on the methods, samples and data sources

	Methods	Data sources /sample size
Implementation	Expert interviews	9 BTC campaign managers
	Document analysis	Reporting data on BTC obtained from the SAF
	Survey BTC collaborators key cities	N = 38 collaborators (54 invited; return rate 70.4%)
	Survey further intermediaries	N = 80 intermediaries (138 invited; return rate 58.0%)
Costs	Analysis of reporting & financial data	14 organizations provided time sheets on working hours spent for BTC 2015; financial information on BTC 2015 obtained from the SAF & the FOPH
Effects among MSM	Pre-survey (Gaysurvey 2014)	N = 834 MSM
	VTC-survey (BerDa assessment tool)	N = 885 MSM
	Post-survey	N = 688 MSM

2 Main results

2.1 Action model of BTC 2015: aims of the campaign (intended outcome)

The main goals of BTC are to interrupt the chains of HIV transmission among MSM and to reduce the “community viral load” (FOPH 2011). To reach these goals BTC uses a community action approach. In order to depict this approach and to reveal how the campaign is supposed to work, we elaborated an action model with the key actors of the FOPH and the SAF that have developed the campaign. In the following we highlight key aspects of the model: Community action approach, aims and the implementation strategy of BTC 2015.

Community action approach: BTC calls upon all MSM to break the transmission chains of HIV infections and avoid any risk of HIV transmission during the period of one month (i.e. in April) and until they get tested in May. Thus, BTC aims at short-run risk reduction behaviors during one month linked to HIV test uptake directly after this period. The basic idea of “breaking transmission chains” was that MSM who got infected by HIV before April without knowing it, should have, in May, their HIV infection in a biological stage (primary infection) where it is detectable with the current available HIV tests. The key concept of the campaign was communicated in printed materials (postcards, ads) and online as followed:

“It’s simple: In order to prevent new HIV infections, avoid taking any risks for the month of April and then take an HIV test for CHF 10.- in May. The more men who take part in this campaign, the more successful we will be in our efforts to combat HIV. So tell your friends about Break the Chains and join us.” (<http://www.breakthe-chains.ch/en/> downloaded 6.3.2015).

Aims of BTC 2015: BTC aims to reach MSM with risk behavior and motivate them to use a risk reduction strategy during April and until they get tested in May. Furthermore, it aimed to deliver information on primary infection phase and its relevance for HIV transmission among MSM. As the campaign is working with a community action approach BTC 2015 implicitly assumed that MSM who share a sense of belonging to the gay community and/or of being part of a “sexual network” are more likely to participate in the campaign. Therefore, a strong connectedness to the gay community can be considered as an intermediary aim of BTC 2015. The responsible actors emphasized that the annual repetition of the BTC

is needed in order to have an effect on the HIV epidemic (long term effect). Furthermore, secondary aims were also present in the discussion with the responsible actors; e.g. BTC 2015 can raise awareness for HIV, reassuring all MSM who are consistently avoiding any risk of HIV transmission to maintain this behavior or increase publicity for community clinical services (including testing). The present report concentrates on the following intended outcomes among MSM:

Table 2: Intended outcomes of BTC 2015 among MSM

Primary aims	Risk reduction behavior in April 2015 (mobilization of MSM at risk to participate in BTC 2015) HIV test uptake in May 2015 and reasons for test uptake (MSM at risk take a test because they participated in BTC and avoided any risk of HIV transmission during April and until tested) Increase of knowledge on primary infection
Intermediary aim	Strengthening the sense of belonging to the gay community (or being part of sexual networks)

Implementation strategy 2015: The FOPH commissioned the SFA to implement BTC 2015 particularly in the five cities (Zurich, Lausanne, Geneva, Basel and Bern) most affected by HIV. The campaign was designed as a multi component campaign lasting for four months (March to May) using various communication channels as well as monetary incentives to take an HIV test (reduction of the price for an HIV test for the targeted population during May). More precisely the campaign used the following channels: Media channels included ads and news stories in gay magazines, but also posters, flyers, condom catch covers and silicon bracelets. Online, the campaign was advertised at websites tailored at MSM, had a Facebook account and a dedicated campaign website. Intermediaries such as gay community organizations and managers of gay bars, saunas and sex clubs etc., were asked to put out the campaign materials in their facilities and welcome prevention activities. Last but not least, local partner organizations – mainly MSM-competent health clinics, so called “Checkpoints”, in the five cities most affected by HIV – engaged in intense BTC outreach activities. In order to better tailor BTC 2015 for MSM that are at risk of acquiring or transmitting HIV, the FOPH and the SAF had developed an online self-assessment tool “Risk Check” (questionnaire). During BTC 2015, MSM could check their HIV risk online and received a tailored recommendation how they could participate in BTC 2015.

2.2 Assessment of the implementation of BTC 2015

The assessment of the implementation of the BTC 2015 evaluated whether the campaign succeeded in establishing direct and mediated communication with the MSM target population and which campaign messages were disseminated.

The campaign reporting data presented in Table 3 shows that the implementation of BTC was substantial in terms of outreach activities (presences at gay public venues in the city most affected by HIV) and communication channels used to reach MSM. Local organizations performed in total 92 outreach activities during March and April 2015 in order to mobilize as many MSM with risk behavior as possible to participate in the campaign. More than half of these activities were performed in the three cities most affected by HIV. The majority of the activities were performed by local teams of two to three outreach workers including professionals and peers. Interviews with local campaign managers indicate that the intensity of outreach activities in these cities were completely sufficient in 2015. According to their experiences more activities only would have increased the number of contacts with the same MSM and might have annoyed them. Further, responsible outreach workers estimated that they had conducted 3'856 conversations and contacted 17'145 MSM in eleven regions during March to April 2015. This reporting data does not differentiate between MSM at risk and MSM who are consistently avoiding any risk of HIV transmission. Interviewed campaign managers shared the experience that it is difficult to

tailor outreach activities in particular to MSM at risk. They pointed out that they missed a concrete guidance how to reach MSM at risk and in particular those at risk MSM who prefer private locations and do not visit public venues. Outreach activities were complemented by news stories and advertisements in gay magazines and online communication.

Table 3: Campaign instruments, activities and audience size

Instrument	Number of activities		Audience size	
Outreach activities March and April 2015	92	outreach activities (evenings) in 11 regions ^a	Conversations Contacts	3 856 ^b 17 145 ^b
Outreach activities May 2015	30	outreach activities (evenings) in 8 regions ^a	Conversation Contacts	657 ^b 2 429 ^b
Campaign website in German, French, Italian, English	1	website	Clicks	9 746 ^c
Risk check (online self-assessment tool hosted at the campaign website) in German, French, Italian, English	1	self-assessment tool	Assessments	1 629 ^d
Advertisements and news stories in gay magazines in March to May 2015	4	newspapers, average circulation 24'250	no data	
HIV test offer for MSM in May 2015	34	VCT sites offered HIV tests at reduced price. 3 of these sites offered HIV tests at public venues.	Tests	885 ^e

Notes. ^a An outreach activity = visits of public gay venues/date/region. Data about outreach activities in May 2015 is missing for three regions. ^b Estimated by the responsible outreach workers; "contact" includes handing out of leaflets or being seen, "conversation" includes at least a conversation of a few minutes and the dissemination of the core campaign messages ^c Number of websites clicks. ^d Number of performed assessments (1053 assessments were complete). ^e Number of HIV tests amongst MSM at reduced costs in May.

Sources. ^{a-d} SAF October 2015. ^e SFOPH October 2015

The analysis of the survey data shows that the campaign enjoyed great support among the intermediaries that were expected to disseminate the campaign materials to their MSM clients. In total, 69 (86.3%) out of 80 intermediaries reported that they had received the posters and/or the flyers. Among these intermediaries 60 (90.0%) declared that they had put out the posters and/or the flyers in their facilities. These high rates of self-reported compliance might be biased. On the one hand intermediaries who did not support the campaign might have refused to participate in the survey, on the other hand the survey participants might have reported social desirable behaviors.

Interviewed local campaign managers pointed out that they radically reduced the campaign messages to a short call for the outreach communication: "take a test in May, protect yourself in April". They emphasized that public gay venues such as parties or crowded bars would not allowing long interpersonal communication on risk behaviors, the relevance of sexual networks and primary infection. They stressed that the campaign is far too ambitious as its aims to reach as many MSM at risk as possible with a very demanding rationale for the intended risk reduction in April and testing in May. According to the survey among the campaign collaborators "take a test in May" was the message most frequently addressed in outreach conversations (on average in nine out of ten conversation), followed by "participate in Break the Chains and avoid any HIV transmission risk in April" (on average in eight out of ten conversations). These findings reveal that the campaign content – the concept and its multiple messages (avoiding any risk of HIV transmission in April, test in May, information concerning primary infection)

– seemed to overburden outreach communication. The campaign outreach communication tended towards test promotion while other messages were less present. Thus, we can state that the dissemination of the campaign's action concept and messages only partially succeeded in interpersonal communication during outreach activities.

2.3 Assessment of the costs of BTC 2015

The analysis of the cost of BTC 2015 included all direct and indirect cost (productivity losses). The following categories were included: working hours, travel expenses, the overhead costs of the involved organizations, the campaign materials (e.g. posters, flyers) and services provided by third parties (e.g. advertisements, translations), and the costs for the reduction of the price for HIV tests in May 2015. The responsible actors (FOPH, SAF and 14 local partner organizations) recorded paid and unpaid working hours dedicated to implementing the campaign and provided information on their hourly rates. We used the human capital approach to measure the costs of volunteer work (unpaid working hours) and assumed an hourly rate corresponding to the average opportunity costs of a lost working hour in Switzerland. Additionally, the cost for the present study is also included in the estimation for the overall costs of the BTC campaign 2015.

Table 4 provides an overview on the estimated costs spent for BTC 2015. The total direct cost of BTC 2015 were CHF 585'414 and total direct and indirect costs amounted to CHF 603'896. The main cost drivers were the salaries (in total CHF 278'320; 46.1%) and the costs for campaign materials and third party services (CHF 169'000; 28.0%) while the costs for the reduction of the price for HIV tests in May 2015 (CHF 10 instead of CHF 50 for one test) only amounted to 6.0% of total direct and indirect costs. In contrast, the costs for the present study amount to 16.4% of the total campaign costs. The present study is rather comprehensive while the second and third editions of BTC campaigns were not accompanied by an evaluation. The indirect costs represent mainly the value of unpaid working hours spent for the campaign estimated at CHF 14'091. Interestingly, much higher numbers of unpaid working hours were recorded by the French-speaking compared to the German-speaking partner organizations of the SAF (387 hours versus 40 hours, respectively). Volunteers considerably contributed to outreach campaign activities in the French-speaking region: 387 out of a total of 800 hours of outreach campaign activities were unpaid working hours compared to 40 out of 763 hours in the German-speaking region.

Table 4: Estimation of the direct and indirect costs of the campaign

Cost categories	in CHF	% of total costs
Direct costs		
Salaries (paid working hours = 3 423)		
National organizations SFOPH (hours =55) and SAF (hours = 1 703) ^a	175 800	29.1
Local partner organizations: campaign management (hours = 629) ^b	53 484	8.9
Local partner organizations: outreach activities (hours = 1 036) ^c	49 036	8.1
Paid out-of-pocket expense (e.g. travel expenses)	2 814	0.5
Material and third party services (e.g. consultancy, website, advertisements, translations, printing posters and flyers)	169 000	28.0
Price reduction of HIV tests in May 2015	36 400	6.0
Total costs for the present evaluation	98 880	16.4
Total direct costs	585 414	96.9
Indirect costs		
Volunteer work of the local partner organizations (unpaid working hours = 427) ^d	14 091	2.3
Unpaid out-of-pocket expenses	4 391	0.7
Total indirect costs	18 482	3.1
Total cost estimation (incl. direct and indirect costs)	603 896	100.0

Sources: SFOPH and SAF. Notes. ^a For the SFOPH and the SAF an hourly rate of CHF 100 including overhead costs was assumed. ^b For the local campaign managers an hourly rates of CHF 85 including overhead costs was assumed. ^c Hourly rates for the outreach work differed regionally and ranged between CHF 20 and 60, effective rates were included. ^d Based on the Swiss average income of CHF 67 400 per year an hourly rate of CHF 33 for the volunteer work was assumed.

2.4 Effects of the campaign among the MSM population

The analysis of the MSM survey data differentiated between two subgroups of MSM: MSM with at least one risk behavior in the previous 12 months (e.g. unprotected annual intercourse with a partner of different or unknown HIV status) versus MSM that are consistently avoiding any risk of HIV transmission in the previous 12 months. This differentiation is strongly informed by the action model and expresses that BTC aimed at changing the behaviors of MSM with risk behavior. For the purpose of this analysis, all survey participants were exclusively assigned to one of these two groups based on their self-reported risk behavior in the last 12 previous months. The proportions of MSM with risk behavior range between 31% (VCT-BTC-survey), 32% (pre-survey) and 45% (post-survey).

Campaign awareness and recognition of main campaign message: To have an effect the campaign needs to be recognized by its target population: Up to two third (64.0%) of MSM with risk behavior indicated that they heard about BTC 2015. MSM consistently avoiding any risk of HIV transmission reported less frequently that they had heard of the campaign (53.8%). Although it is difficult to compare exposure rates due to different methods of recall (unaided/aided recall), the wider literature on HIV media communication campaigns calculated the standard reach between 52% and 77% (Flowers et al. 2013, Noar et al. 2009). Thus, BTC 2015 achieved a fair reach, and this is particularly true for MSM with HIV risk behavior. Of those who had heard of BTC, the majority (65.4 %) was able to identify the key message of the campaign but only a minority (37.8 %) felt concerned by the campaign. MSM with risk behavior did neither better identify the main campaign message nor did they feel more concerned by the campaign compared to MSM who are consistently avoiding any risk of HIV transmission.

Targets risk reduction behavior: A total of 251 (62.4 %) respondents who had heard about the BTC campaign reported that they consistently used a risk reduction strategy during April 2015 and until they got tested in May. MSM with at least one risk behavior in the previous 12 months were considerably less likely to have used a risk reduction strategy in April than MSM avoiding HIV transmission risks in the previous 12 months (47.7% vs. 76.8%). Respondents (251) who always used a risk reduction strategy in April were asked why they had done so (multiple answers allowed, see Table 5). Overall, a majority (82.9%) indicated that they always used a risk reduction strategy and thus, maintained this strategy in April 2015. But, the two groups of interest clearly differ. As would be expected and consistent with their answers on questions concerning their sexual behaviors in the previous 12 months 91.0% of MSM not at risk reported that they had used a risk reduction strategy in April 2015 because they always use such a strategy. We noticed that 69.5% of MSM with risk behavior in the previous 12 months also declared they always used a risk reduction strategy. They seem to be convinced that they usually do not take any HIV transmission risk, even though they reported having done so in other survey questions. Finally, we also noticed that 20.0% (N = 19) of MSM with risk behavior in the previous 12 months reported that they had used a risk reduction strategy in April 2015 in order to participate in the BTC campaign. Thus, BTC 2015 was able to mobilize a small proportion of MSM who heard of the campaign to participate in the campaign. The crucial question is, whether these behavior changes are sufficient to have a positive/significant impact on the HIV epidemic among MSM.

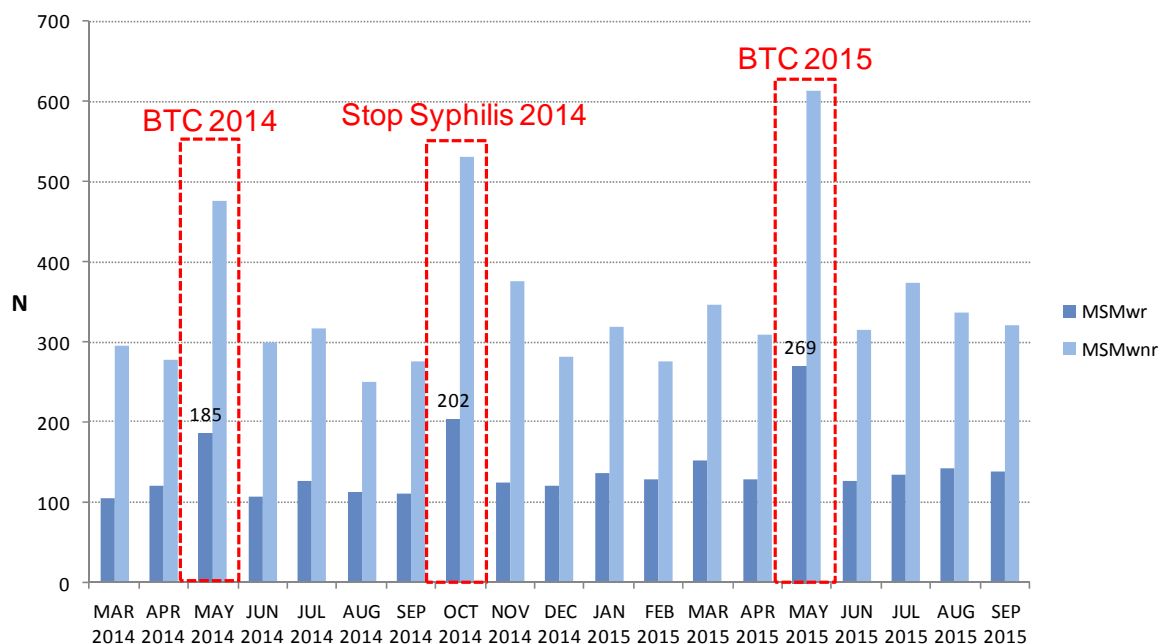
Table 5: Reasons for using a risk reduction strategy in April 2015 (Post-survey data)

Question	Response	Total % (N)	MSMwr % (N)	MSMnr % (N)	X ² test (p-value)
Reasons for always using a risk reduction strategy in April? (multiple answers allowed)	Adopted risk reduction to participate in BTC 2015	9.6 (24)	20.0 (19)	3.2 (5)	0.000
	Always used a risk reduction strategy	82.9 (208)	69.5 (66)	91.0 (142)	0.000
	Other reasons	8.4 (21)	13.7 (13)	5.1 (8)	0.018

Total N = respondents who had heard of BTC and reported that they have used a risk reduction strategy in April 2015. MSMwr = MSM with HIV risk behavior in the previous 12 months; MSMnr = MSM who consistently avoided any risk of HIV transmission in the previous 12 months.

Test-up take: Only few respondents in the post-survey reported that they had been tested for HIV in May 2015. We decided to use the data obtained from the VCT sites that offered HIV tests for MSM at reduced price in May 2015. We plotted the number of MSM with risk behavior and MSM without risk behavior in the previous 12 months by date of consultation between March 2014 and September 2015 (see Figure 1). We observe a specific increase in the number of respondents when the prevention campaigns targeting MSM occurred in Switzerland (Break The Chains in May and the Stop Syphilis campaign in October). An increase (steeper than the slight secular increase in the number of tests) is also noticeable between the successive campaigns supporting a plausible increase in the ability of the BTC campaign to motivate MSM to get tested in May. Whatever the date of consultation, the number of MSM without risk behavior in the previous 12 months (MSMwnr) is much higher than the number of MSM at risk (MSMwr). The increases observed at specific dates concerned both groups with a similar magnitude.

Figure 1: HIV test uptake at VCT sites in Switzerland by data of consultation and risk behavior

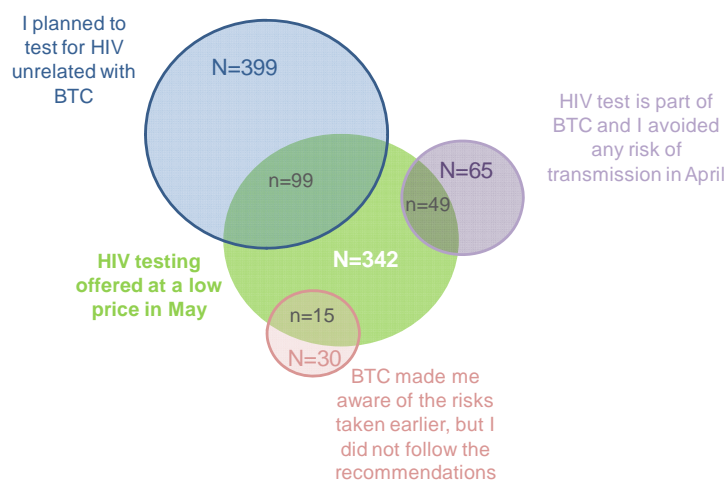


In May 2015, in total 707 MSM came to get tested in the VCT sites that offered HIV tests at CHF 10.- instead of 50.- for MSM in this period. Figure 2 shows the reasons why they came to get tested (Multiple answers allowed):

- 399 (56.4%) chose the answer that they planned to test for HIV unrelated with BTC; among them 99 also chose the answer that they came because the HIV test was offered at a low price in May;
- 342 (48.4%) chose the answer that they came because the HIV test was offered at a low price in May;
- 65 (9.2%) chose the answer that they came because the HIV test was part of BTC and they avoided any risk of transmission in April;
- 30 (4.2%) chose the answer that BTC made them aware of the risks taken earlier, but they did not follow the recommendations.

Overall, 373 (52.8%) respondents mentioned a reason to get tested that has a link with the BTC campaign. Among these reasons, low price of HIV test in May was by far the most prevalent reason.

Figure 2: Reasons to test for HIV in May 2015 (VCT-survey, multiple answers allowed)



Knowledge on primary infection: We also assessed the differences, between Gaysurvey 2014 and the Post-BTC-Survey, between the proportion of respondents who feel well informed about the early phase of HIV infection. This proportion in Post-BTC-Survey is significantly higher than in the Gaysurvey 2014 (58.0% vs. 51.1%)³. Moreover, in the Post-BTC-Survey, this proportion is much higher among those who heard about the BTC campaign than those who have not heard about it (65.0% vs. 36.3%)⁴.

Sense of belonging to the gay community (community connectedness to the place of residence and/or nearby cantons): From the scale developed and validated by Frost and Meyer in 2012, four questions were asked (4 response modalities: totally agree to strongly disagree):

- Do you have the feeling to be part of the LGBT community in your area?
- Being part of the LGBT community in your area is something positive for you.
- If we work together, gay and bisexual can solve the problems of the LGBT community in our region.
- You have the real feeling that all problems faced by the LGBT community in your area are also your problems.

A low score (min=1) indicates a poor sense of belonging, a high score (max=4) indicates a high sense to the LGBT community. Respondents having heard about BTC have an average score higher than the respondents who didn't hear about it (2.47 vs. 2.14). The difference is statistically significant but the sense of belonging is rather low in both groups⁵.

2.5 Overall assessment: was Break the Chains 2015 effective and efficient?

Break the Chains had a modest effect on its primary target outcomes (campaign participation of MSM at risk, i.e. who avoided any risk of HIV transmission in April and until getting tested in May). But it

³ Pearson's chi-square test: p=0.019.

⁴ Pearson's chi-square test: p=0.000.

⁵ By way of comparison, The Urban Men's Health Study (UMHS) obtained a mean score of 3.31, for a scale with 7 items and response modalities were from 1 to 49. STRIDE study, which were interested in all sexual minorities (and not only MSM), obtained an average score of 3.30 for a scale with 8 items.

reached a considerable number of MSM and achieved an increase in test uptake in May 2015. The analysis of the implementation showed that BTC 2015 established intense interpersonal and mediated communication during the main campaign period March and April 2015. It revealed that the complex campaign concept including many messages was difficult to deliver during outreach activities at gay venues.

In the following, we set the costs of the campaign in relation with the primary outcomes of the campaign. While we can set the number of estimated contacts directly to the campaign costs, the cognitive and behavioral outcomes among MSM measured with the post-survey need to be extrapolated to the MSM population of Switzerland. Here, we assumed that the population of MSM aged 15 to 64 years ranges between 65'000 and 95'000 men in Switzerland (Schmidt et al. 2016).

Based on the total campaign costs (including direct and indirect costs, but excluding the costs for the HIV test price reduction)⁶ and the total reported number of encounters (outreach contacts, outreach conversation and clicks on the BTC website March to May 2015) it can be assumed that each encounter costs approximately CHF 17 (see Table 6).

If we assume that 58.4% of the MSM population in Switzerland has heard of the campaign, we can estimate the costs to reach one MSM at CHF 10 to 15 depending on the sizes of the MSM population. Finally, Table 6 also provides a cost estimation per BTC participation of one MSM at risk in the previous 12 months (using a risk reduction strategy during April 2015). The lower value of CHF 213 is obtained if we assume a larger MSM population (95'000 men aged 15 to 64); the higher value of CHF 312 results if we extrapolate the outcome measure to a smaller MSM population of 65'000 men.

Table 6: Approximated costs per outcomes of the campaign

Outcomes	Outcome measure	Estimated outcome at the MSM population level	Campaign costs ^a / estimated outcome
Encounter	Outreach contact & conversation March to May 2015, clicks campaign website (reporting data from SAF)	33 833	CHF 17
To reach one MSM	MSM who heard about BTC 2015 (58.4% of the post-survey sample)	37 960 – 55 480 ^b	CHF 15 - 10
To change the risk behavior of one MSM at risk during April 2015	MSM at risk who used a risk reduction strategy in April in order to participate in BTC (2.8% of the post-survey sample ^c)	1 820-2 660 ^b	CHF 312 - 213

Notes ^a Campaign costs (incl. direct and indirect costs, excluding the costs for the HIV test price reduction): CHF 567'496. ^b Extrapolation of the outcome measure to the MSM population in Switzerland (assuming the size of the population of MSM between 15 and 64 years old: 65 000 – 95 000, Schmidt et al. 2016). ^c Of those 402 (58.4%) respondents who heard of the campaign 19 respondents indicated that they adopted their risk behavior in order to participate in the campaign ($19/688 \cdot 100 = 2.8\%$).

These costs per outcomes have some limitations. First, they are based on estimations of contacts and conversations by the responsible outreach workers and on self-reported behaviors of MSM. Hence, the estimates might be biased by errors in estimation and/or social desirability. Second, the number of encounters includes outreach conversation and contacts with MSM and clicks on the campaign website

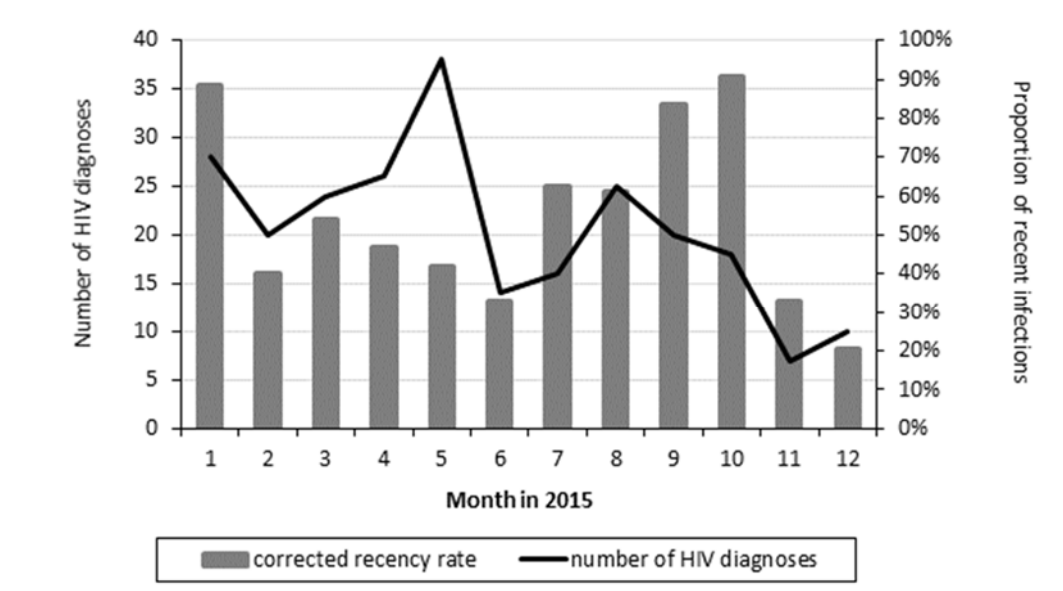
⁶ The costs of the HIV test reductions could not be directly linked with the BTC 2015 campaign. The motivation for conducting a test might be unrelated to BTC 2015.

but no information on the contact frequencies of the posters, flyers or gay media communication. The total number of encounters is likely to have been much higher, than estimated here. Third, the targeted risk reduction behavior in April 2015 was measured with a self-selected sample of MSM. We cannot assume that this sample is entirely representative for the MSM population in Switzerland. Finally, cost data could also be biased: The salaries that are representing nearly half of the costs (see Table 4) are based on information reported on timesheets by the involved campaign managers and staff and hence, might over- or under-estimate the numbers of working hours.

Thus, the cost estimates per outcome are rough approximations and include multiple uncertainties. However, these estimates nourish an economic perspective on prevention interventions. As such estimates are largely missing for other prevention interventions, the assessment of the estimates is restricted. One could certainly compare them to the costs for the therapy of HIV-patients that amount in Switzerland to approximately CHF 25'000 per person and year and CHF 1 Mio over a patient's life-time (FOPH 2010). Hence, the BTC 2015 would be a cost-saving preventive intervention if at least one HIV infection could be averted. In our analyses we are not able to draw a direct link between costs and averted HIV cases, although this would be the outcome of major interest from a perspective of patients, clinicians and public health officials.

FOPH reported 526 new HIV diagnoses for the year 2015, which is similar to the number of the year 2014 (n=516) (FOPH 2015, 2016). Sex between men remains the predominant mode of HIV transmission, accounting for 49.4% (255 cases) of all reported HIV diagnoses in 2014 respectively for 46.8% (246) in 2015. Figure 3 shows the monthly number of newly diagnosed HIV infections among MSM and the estimated proportion of recent infections in 2015. The number of HIV cases among MSM increased in May 2015. The increase of new HIV diagnoses in May mainly concerned old infections (FOPH 2016) (see Figure 3).

Figure 3: Monthly HIV-diagnoses in 2015 among MSM in Switzerland and estimated proportion of recent infections



Source: FOPH, February 2016.

Although BTC 2015 particularly aimed to detect recent HIV infections among MSM, the detection of any (old) HIV infection is worthwhile with respect to the goals of HIV prevention and treatment. This epidemiological data thus provides evidence for the success of BTC in terms of HIV test promotion.

Based on the available data, we however cannot attribute (all) the HIV infection diagnosed in May 2015 to the BTC campaign. Several new HIV diagnoses were reported by test sites and private physicians that did not participate in the test promotion campaign of BTC and did not offer HIV tests at low price in May 2015. These sites and private physicians are not using the BerDa assessment tool and therefore, data on the reasons to get tested is lacking for these cases. It is of course possible, that MSM who participated in BTC chose to get tested within these sites.⁷

Among 885 MSM tested for HIV in May 2015 within VCT centers using the BerDa assessment tool, 11 tests were reactive (rapid test results). Overall, 4 (36.4%) of the respondents with a reactive test mentioned a reason to get tested that has a link with the BTC campaign. Among these reasons, low price of HIV test in May was the most prevalent reason. Thus, the available data suggests that some HIV infection diagnosed in May 2015 were in fact detected thanks to BTC 2015.

Additionally, we observe an increase in the proportion of recent HIV infections three to four month after the BTC campaign that parallels the second test promotion campaign of the FOPH, SAF and the VCT-sites. The so called "Stop syphilis" campaign has taken place in October 2015 and participating VCT-sites offered all MSM clients who came to get tested for syphilis also an HIV test. Based on the available data it is difficult to interpret this observation. Again, we should not assume that (all) the reported recent HIV infections in October 2015 are attributable to the "Stop syphilis" campaign without any further information. Future investigations should conduct a comparative analysis of the test outcome of these two campaigns. Is the "Stop syphilis" campaign better able to detect recent infection than BTC? And if yes, how can we explain these differences? Is there any interaction between the two campaigns? Such an analysis would provide insights on the interplay and role of the different elements of the "urgent action plan".

We can conclude that the epidemiological data support the findings of our analysis that BTC was able to reach MSM, and in particular, MSM with risk behavior who are not aware of having an HIV infection.

3 Recommendations

Based on the findings of the present study we formulate the following four recommendations:

1. Maintain the high commitment and efforts for HIV prevention activities for MSM

The present study assessed the effects of an unconventional, innovative but rather complex and ambitious HIV prevention intervention. We found a moderate effect on the targeted risk reduction behaviors and a considerable effect on test uptake among MSM in May 2015. The implementation analysis shows that campaign activities were substantial and reached a considerable number of MSM. The estimate of the campaign costs and the campaign costs per outcomes reveal that HIV prevention for MSM nourish an economic perspective. It highlights that the estimated costs for one month HIV therapy in Switzerland (CHF 2080) is many times higher than the estimated costs for the BTC participation of one MSM at risk in the previous 12 months who adopted at least during one month a risk reduction strategy (CHF 213 – 312).

⁷ The FOPH collected additional information from the physicians who newly diagnosed an HIV infection among MSM in May 2015 (Schmidt and Gebhardt 2015). In total, the FOPH received information on 18 cases. None of the physicians that provided additional information on these cases reported that their patient had come to test because of BTC 2015. In contrast to BerDa data, this data on the campaign awareness and reasons to get tested for HIV is not obtained directly from the patient seeking the test.

Our study did not measure secondary effects such as problem awareness, increase of publicity for community clinical services (including HIV testing) or reassuring MSM who consistently follow an adequate risk reduction strategy. These secondary effects are also relevant and might have an impact on the epidemic. Further, the present study concentrated on BTC 2015 and does not provide any insights about potential interactions with other elements and interventions of the "urgent action plan".

Against this context and based on the recent ECDC recommendations and scientific literature (e.g. Strömdahl et al. 2015) HIV prevention intervention for MSM targeting risk reduction behaviors remains a cornerstone in the fight against HIV. Hence, we recommend that the high commitment and efforts for HIV prevention intervention for MSM should be maintained.

2. Reflect on the campaign concept and messages

The analysis of the implementation reveals that the delivery of the ambitious and complex campaign concept and messages rather overstrained the possibilities of outreach activities. We observed that the campaign messages were drastically reduced at the local level and emphasized more the promotion of HIV testing compared to risk reduction respectively messages such as primary HIV infection and the relevance of sexual networks. The findings of the post-survey show that BTC 2015 reached a moderate proportion of MSM at risk in the previous 12 months who reported that they used a risk reduction strategy in April and until they got tested in order to participate in BTC 2015. This result is also confirmed by the VCT-survey data of MSM who got tested in May 2015. Only a relatively low proportion of MSM reported that they have complied with the BTC campaign recommendations. Thus, it is questionable whether the size of the targeted behavioral effect (MSM at risk in the previous 12 months who participated in BTC) is large enough to impact on the HIV epidemic among MSM in Switzerland. Respondents' knowledge about the early phase of HIV infection was slightly higher in the post-survey than in the pre-survey and "having heard about the campaign" was associated with a higher sense of belonging to the gay community in the post-survey.

Against this background we recommend to reflect on the campaign concept (community action approach; mobilization of short-run risk behavior during one month) and on the numbers of campaign messages. The findings of the present study indicate that the complexity and the number of the campaign messages (rationale) should be reduced.

3. Reflect on tailoring prevention activities towards MSM most at risk

The post-survey among MSM population and the interviews with local campaign managers clearly indicate that it is difficult to effectively reach MSM most at risk. The post-survey reveals that MSM at risk in the previous 12 months were more likely to have heard of the campaign, but did not feel more concerned by the campaign than MSM who are consistently avoiding any risk of HIV transmission. Interviewed local campaign managers pointed out that the campaign concept of BTC 2015 did not specify how they could better tailor outreach activities. They missed a concrete strategy how to approach this hard-to-reach population group with outreach activities. Lacking such a strategy, the local campaign managers aimed to be present at different types of gay venues as efficiently as possible.

Thus, we recommend to reflect on tailoring prevention activities towards MSM most at risk. This reflection should be guided by the following considerations and might end up either in giving up the aim of tailoring in particular MSM at risk or lead to a more concrete strategy how to tailor these hard-to-reach MSM:

- Consider the current local experiences of outreach workers: The present study showed that the campaign's concept overloaded the task of outreach workers (complex campaign rational including many messages and tailoring MSM at risk);
- Take into account local experiences and research-based information (e.g. Gaysurvey 2014) concerning the local venues used by MSM most at risk.
- Reflect on reassuring MSM who are consistently avoiding any risk of HIV transmission.
- Take into account that the post-survey shows that MSM at risk did not feel concerned by BTC 2015 in a greater proportion than MSM not at risk.
- The differentiation of MSM at risk and MSM not at risk is crucial from an epidemiological perspective. But a "classification" of MSM at a particular point in time represents a self-reported "snapshot" and does not take into account dynamics in individual sexual behaviors. Further, a dichotomous differentiation masks a large range of risk behavior patterns between "consistently avoiding any risk of HIV transmission" to "consistently practicing unprotected annual intercourse with multiple partners of unknown or different HIV status".

4. Maintain testing month(s) offering HIV tests at low price.

The present study clearly reveals that low test price is an effective incentive to motivate MSM to take an HIV test. The number of tests performed at the VCT sites considerably increased and concerned both MSM at risk and MSM not at risk. Thus, we recommend to maintain test promotion including the reduction of the HIV test prices.

5. The support of the local partners of the gay scenes (gay community organizations, managers of gay bars, saunas etc.) should be maintained as it facilitates outreach campaign activities and reinforces the visibility (coverage) of the campaign.

Outreach prevention activities and campaign posters and flyers are important channels to deliver HIV prevention messages to the MSM population. Post-survey data show that these two channels belong to the four main channels through which the MSM respondents had heard about BTC 2015. Gay community partners contributed to the dissemination and visibility of the campaign as they had hanged up the posters and flyers in their facilities. Further, they are important facilitators of outreach prevention activities: They had welcomed and supported such BTC campaign activities in their party rooms, saunas, clubs etc. Thus we recommend to foster the support of the local partners of the gay scenes. Some interviews with local campaign managers revealed that it is important to clarify the possibilities how these partners can contribute to HIV prevention interventions targeting MSM.

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