

## Original Article

# HIV Contact Tracing in Other Countries – Implementation and Efficacy of Various Strategies

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### Abstract

HIV contact tracing or partner notification refers to the process of identifying the contacts or sexual partners of an HIV-infected person and ensuring that they are aware of the exposure risk to the disease, so they can receive the counseling and testing services, and take safety measures to protect themselves and other people. As contact tracing may infringe on the patient’s privacy, it is difficult to carry out and requires a high level of knowledge, skills, and appropriate training. This paper compares the strategies and results of HIV contact tracing programs implemented in other countries, including USA, Britain and Australia. It is hoped that the information provided in this paper will help policy makers develop and promote HIV contact tracing in Taiwan.

**Keyword:** HIV/AIDS, sexual partner, partner notification, contact tracing

### Introduction

Contact tracing or partner notification refers to the process of making the relevant contacts or sexual partners of an HIV-infected person aware that they may have been exposed to the disease, so they can receive further counseling and testing services, and take safety measures to protect themselves and other people. Currently in our country contact tracing is carried out by the public health workers at local health authorities. Informing the risks and offering appropriate services are clearly the responsibilities of public health workers. However, a very high level of skills is also required to balance the right to know of those who are potentially infected with the right to privacy of those who have been diagnosed. Although the law has given public health workers the authority required to investigate infected patients in order to identify the source of the infection and possible contacts, it has not been a straightforward process. As HIV/AIDS is still considered by the

society as a somewhat shameful disease, those who are infected tend to become quite defensive during investigation and reluctant to reveal the information of their contacts. Some HIV-infected people make friends or have sexual relations with those who they meet through one-night stands, parties, or the internet, making it even more difficult in tracing down these contacts whose full names and contact details are often not known to the cases. This paper reviews the experience and literature on contact tracing in other countries, in the hope that this information will help improve the quality and efficacy of our own contact tracing programs.

## **Literature Review**

### **Definition and purpose**

Contact tracing or partner notification is the process of identifying those who have been in contact with patients diagnosed with sexually transmitted disease (STD) (including HIV), informing them that they have been exposed to a STD or HIV, and may have been infected, and encouraging them to attend counseling, testing, and other prevention and treatment services [1]. Contact tracing is an important and essential part in the public health case management [2]. Studies have found contact counseling and referral service to be an effective tool for identifying HIV positive cases. In these studies, 8% to 39% of contacts referred for testing were found to have previously undiagnosed HIV infection [3]. The HIV Partner Counseling and Referral Services in the United States, launched in 1998, has its emphasis on the real purpose of contact tracing which is to find as soon as possible those cases whose infections have not been diagnosed, and connect them to the healthcare system so other intervention services can be offered.

Contact tracing is an important tool in controlling and preventing the spread of HIV as it helps locate more HIV carriers so the risk of spreading can be reduced. A US study on the efficacy of identifying HIV positive cases through contact tracing reviewed nine researches of sample sizes between 42 and 1,379 people. It found that contact tracing conducted by specialized staff had effectively increased the testing rate of high risk HIV cases. Around 44% to 89% of traceable contacts were informed of the risks through the notification services. On average, 63% of those notified were tested, and 20% (ranged 14-26%) of those tested were diagnosed as new HIV-positive patients [4].

In 2005, the RAND Corporation, an American think tank, analyzed the cost of a wide range of HIV prevention interventions funded by the US government and offered some objective suggestions for a more effective allocation of funds. Its report concluded that the 10 most cost-effective interventions to prevent HIV infections were mass media campaigns, one-on-one HIV counseling and testing, educational videos in STD clinics, STD screening at HIV clinics, community outreach, increasing condom availability and accessibility, opinion leaders programs, implementing needle exchange in high to medium-prevalence areas, as well as notifying sexual partners [5].

## **Contact Tracing Strategies in Other Countries**

### **Principles and administration**

Laws and regulations in the USA, UK and Canada prohibit details of HIV-infected cases to be revealed during contact tracing. Information about the contacts such as their test results is also confidential and should not be revealed to the HIV-infected cases. In order to prevent HIV from spreading, government regulations in China and Singapore have granted health authorities the power to notify the partners of HIV-positive cases without needing their permission. No research or report about the conditions in China or Singapore has been found in literature reviews but countries in Europe and USA do have clear guidelines in regard to contact tracing strategies which are to be explained in the following paragraphs.

In western countries contact tracing is often carried out by trained specialists. In the United States, partner notification is performed by disease intervention specialists. They have programs in place which are dedicated to the contact tracing of STD and HIV, and offer a complete support package during the process of notification.

In the UK, contact tracing is performed by sexual health advisers who offer counseling and advice to STD (including HIV) patients, help patients understand and manage their illness, and track down those contacts who may have been exposed to the disease.

### **Strategies implemented**

The U.S. Centers for Disease Control and Prevention (U.S. CDC), in its HIV Partner Counseling and Referral Services guidelines, recommends three main strategies for reaching and informing the contacts of HIV-infected persons. These strategies are provider referral, patient (self) or client referral, and contract referral [6]. In provider referral, HIV contacts are tracked down and informed by health professionals. Provider referral has the advantages of 1) allowing contacts to receive professional services of risk analysis and counseling; 2) ensuring confidentiality of the cases; 3) helping the contacts manage their emotions, and answering their questions or worries; 4) offering on-the-spot testing service; 5) offering on-the-spot counseling; 6) offering guidance to change behavior when appropriate; and 7) providing immediate referral service and information. Disadvantages of provider referral are that 1) it's difficult for providers to look for and identify contacts; 2) providers are not familiar with the lifestyle and concerns of the contacts; and 3) it requires more staff and financial resources compared with other methods [7].

In patient (self) or client referral, the HIV-infected cases take the full responsibility in informing their sexual partners or contacts, and referring them for appropriate services. When this strategy is chosen, health professionals should prepare the HIV-positive cases and offer them opportunities to practice through role play. Consideration must be given to questions such as 1) when – when to do it: encouraging patients to tell their contacts as soon as possible; 2) where – where to do it: encouraging patients to choose a more private place; 3) how: teaching patients how to use simple language, avoid the mention of HIV-positive results, and

encourage their contacts to seek testing and treatment in a caring manner; 4) reaction: helping patients imagine what kind of reaction they could be expecting from their contacts, or try to recall how the other person normally reacts to such shocking news, so patients can anticipate and prepare for potential problems, especially for issues related to their privacy. If the patient finds the task difficult, health professionals should offer appropriate referral services.

In contract referral, HIV-infected persons will be given between 24 and 48 hours to notify their contacts about the risks, and refer them to appropriate services. If the case is unable to complete the task within the agreed time frame, health professionals will step in and notify the contacts. A variation of this approach is called dual referral, when the HIV-infected person and health professional notify the contacts together.

### **Implementation and comparison of strategies**

Provider referral has been found by a study in the United States to be the most efficient way to trace or notify contacts [8]. However, health professionals must adhere to some important principles during the process. In principle, participation by HIV-infected cases and their contacts must be voluntary, measures must be taken to protect the patients' privacy, and services must be offered with sensitivity and without any biased personal opinion. A complete support program must include counseling, testing, treatment and other services such as contraception, violence prevention, medication, and social support, etc. Counseling and support are particularly essential for those who choose to contact their contacts by themselves.

On the other hand, a large-scale research in the UK has recommended that, compared with other forms of referrals, it would be better for HIV-cases to follow up and notify their own contacts [9]. Four methods have been recommended for HIV-positive cases to proceed with the notification. The first method is to notify face-to-face or by phone communication. Face-to-face communication has always been considered as the 'golden rule' to notify sexual partners, because it shows respect, courage and care. It also gives the case a chance to see the partner's reaction and to offer support.

The second method is using a contact slip issued for each traceable contact which contains the index patient's clinic number and the disease code of the index patient's condition. The purpose of the slip is to allow the contact to receive appropriate screening and treatment at the clinic without offering further details of the index patient. When the slip is presented, details of the contact can be cross referenced with the index case in order to establish whether partner notification has occurred [10]. This procedure demonstrates that partner notification in contact tracing is to make the contacts aware of their risk of contracting HIV, without informing them directly the details of their HIV-infected partners. However, as honest is always the best policy, it is suggested that front line health workers in principle should always encourage HIV-infected persons to inform their contacts directly.

Taking advantage of web-based technologies has also been suggested as the third option. Changes in the virtual world means contact tracing through email or internet has attracted more and more attention. For those sexual partners who meet each other through internet, an email address is probably the only way they identify or communicate with each other. Many researches have proved that electronic methods can be used successfully to trace contacts [11]. However it is still recommended that these methods to be used as an extra tool, rather than the only one.

The fourth method is called patient-delivered partner therapy, or PDPT. It allows the sexual partners receive the medication directly from the index patient, without undergoing professional counseling and testing. Offering medication to an individual who has not been clinically evaluated and tested is still considered as a controversial method. An extension of the method is to have the sampling and testing done at home, in order to increase the screening rate of high-risk contacts. In this method, the index patient supplies the sampling tools to his or her own contacts. The tool kit would include a sterilized container, and instructions on how to collect the sample and where the sample can be sent to.

### Reasons for refusal of cooperation and suggested solutions

Contact tracing in Taiwan often encounters difficulties when patients worry about the potential damage to their marriages or relationships, when they lose confidence, suffer domestic violence, or have no home to go back to. When public health workers face obstacles, they can consult experts and other front line workers through the local HIV case management committee, or take advantage of the instant phone consultation commissioned by the Taiwan CDC. It is paramount that the index patient feels confident with the support and assistance offered by public health workers during the process of contact tracing.

The Australasian Society for HIV Medicine (ASHM) has also pointed out in its Australasian Contact Tracing Manual that when a patient is unwilling to identify or supply the details of their contacts, it is necessary to address the concerns of the patient. Table 1 lists some possible reasons as suggested by ASHM. A patient could have refused to cooperate for several reasons [12].

**Table 1. Reasons patients refuse to cooperate and suggested solutions**

Reason	Suggested solutions
Patients don't want other people to know about their infection	Allow the specialist to inform their contacts anonymously
Patients lack confidence	Rehearse through role-play, possibly with the support of a counselor, so patients can anticipate and respond to possible scenarios.
Patients are still unable to accept the diagnosis	Give them more time and support
Circumstantial reasons such as time, distance or lost connection	It is recommended for health professionals to notify the contacts, with extra assistance from other health organizations. Patient-delivered partner therapy (PDPT) may be appropriate in some conditions.
Patients have not understood the seriousness of their contacts' exposure to the disease	Re-educate the patient
Patients do not care about the consequence to their contacts	Explain to the patients that their contacts will find out about the diagnosis sooner or later. Discuss with the patient the risk of repeated infection and their legal obligations.

Source of information: Australasian Society for HIV Medicine Inc. Australasian Contact Tracing Manual, 3<sup>rd</sup> ed. Commonwealth of Australia, 2006.

### **Evaluating the performance of Contact Tracing Programs**

As discussed earlier, contact tracing is not only a crucial part of HIV prevention, but also one of the most cost-effective strategies. Countries around the world have established various methods and recommendations on notification, but contact tracing of HIV-infected cases remains neglected or ignored. In May 2012, the National AIDS Trust (NAT), a well-known UK-based community group, released a report entitled “Partner Notification: a Missed Opportunity” and warned that contact tracing was still largely forgotten in HIV testing and prevention [13]. Any gap in the notification system would allow those who may or may not know about their HIV-infection to continue spreading HIV virus through high-risk human to human activities. Ultimately it comes down to human reasons, either because of the difficulties in managing patients, or because of the extra training, time, and costs involved in its facilitation.

NAT has identified a number of barriers faced by the UK government in promoting and implementing contact tracing. For example, when diagnoses take place in secondary care, primary care, or in the community, unless the key issue of who is responsible for partner notification has been clearly specified, it is difficult to be sure whether sexual health clinics have followed up with contact tracing. Another issue is that some sexual health advisors would rather spend an hour to visit five index patients than spending the same amount of time to trace one contact, most likely due to a lack of skills which leads to a lack of efficiency in contact tracing. As a result, contact tracing has become increasingly ignored as financial pressure builds. It just shows how difficult it is to balance the quality and quantity of contact tracing, or partner notification.

The U.S. CDC has set some important indicators to monitor the performance of contact tracing programs. These indicators are: 1) number of index patients interviewed; 2) total number of the contacts for each index patient; 3) number of traceable contacts; 4) number of un-traceable contacts; 5) number of the contacts who are known but are unable to be traced because their location is unknown; 6) number of contacts whose name and location are known, but have yet to be traced and notified; 7) number of contacts who have been notified and traced by staff; 8) number of contacts who have been identified and notified within the time frame, (how many contacts have been notified and traced within seven days after the interview); and 9) the content of what has been told to the contacts.

Despite having these indicators, the U.S. CDC does not monitor the quality and efficacy of contact tracing on a country-wide scale. While some states such as North Carolina assess their contact tracing programs according to the government’s plan from time to time, most states only assess their contact tracing in commissioned studies. In 1998 New York State passed the HIV Reporting and Partner Notification (HIVRPN) Law. The law requires that, starting from June 2000, healthcare providers must report the information of HIV-contacts (including the patient), and results of the notifications. New York health authorities are required to assist the contacts with risk notification and monitor its results. However, New York State’s official website offers no annual information regarding its monitoring programs [14].

### HIV contact tracing in Taiwan

Similar to western countries, our country has also passed laws which specify the obligation of HIV-infected persons to offer information on the source of their infection and their contacts. Regulations also prohibit public health workers from breaching patients' privacy during investigation. Public health workers would encourage and help HIV-infected persons reveal their infections to their important contacts (partners), so effective preventative measures can be taken, and the social support for HIV-infected patients can be increased so they are motivated to continue their treatment and other medical interventions. HIV contact tracing has always been included in the assessment of local health authorities' HIV prevention program. A country-wide monitoring system was set up in 2011 in order to build up a database of HIV contact tracing.

To further ensure the quality of partner-notification and sexual-contact tracing, local health authorities are routinely assessed by the central government. By June 2013, 94.12% of partners and 32.58% of male-to-male sexual contacts have been notified and tested. 15.02% of the partners and 21.72% of male-to-male sexual contacts tested were newly diagnosed with HIV infection (Table 2). In order to protect the health of the partners, and to encourage them actively take preventative measures, public health workers will encourage and assist HIV-infected persons inform their partners about their infection, and to assist their partners with further counseling and testing. By the end of June, 2013, 79.08% of HIV-infected persons have disclosed their HIV status to their partners, while 31.34% of HIV-infected gay men (including those who are bi-sexual) have revealed their infection to their family and friends, including their partners.

**Table 2. Results of HIV Contact Tracing in Taiwan**

	Number of HIV cases	Number of HIV-cases who have informed their contacts about their infection	Number of contacts (average contact(s) offered per case)	Number of contacts who have been tested <sup>1</sup> (completion rate)	Number of contacts who have been newly diagnosed with HIV <sup>2</sup> (% of no. tested)
Partners of Married HIV-cases	1,683	1331 (79.08%)	—	1,584 (94.12%)	238 (15.02%)
Sexual contacts of gays (including bi-sexual contacts)	11,091	3,477 (31.34%)	15,514 (1.39)	3,614 (32.58%)	785 (21.72%)

Note: contact tracing is considered to be completed when the date of testing and its result (negative or positive) are available. Each index patient would have at least completed the tracing of one contact.

contacts who have been newly diagnosed with HIV rate is the proportion of tested contacts who were found to be HIV positive.

## Conclusion

A US study on the efficacy of voluntary HIV counseling and testing found that 52% of HIV-positive cases in its study had disclosed their HIV status to their sexual partners [15]. Another study on the partner notification of gay HIV-positive cases reported that within a year after being notified of the risks, 82% of the cases had disclosed their HIV status to their primary sexual partners, while 56% of the cases had disclosed to new sexual partners [16]. The World Health Organization has searched major social science electronic database and analyzed journals, researches, and abstracts published between 1990 and 2001. The results showed that in developed countries 42% to 100% of HIV-infected women had notified their contacts, while the percentages in developing countries ranged between 16.7% and 86% which were clearly lower. The percentages of disclosure were largely influenced by the status of the relationship the patients had with their contacts. A research suggested that 49% of patients were more likely to notify their contacts if they were in a current or stable relationship with them [17].

These overseas researches have all been based on dedicated programs where the tracing and notification have been done by specialised staff and have had limited number of samples. In comparison, the completion and notification rates of our contact tracing programs are no worse than overseas results. There are risks involved in disclosing one's HIV status, such as discrimination, blame, and physical and emotional abuse. On the other hand, benefits can also be gained such as an increased social support, reducing the spread of HIV virus between sexual partners, and an enhanced future planning, etc.

In summary, it can be concluded from these countries' experiences that a high quality contact tracing requires not only professional skills and training, but also a considerable amount of manpower and time. Public health workers need to have enough confidence and training to treat contact tracing as the priority. In our country there has been a continuous effort in the case management and up-skilling of contact tracing. However, the reality is that currently front line public health workers have been frequently transferred between posts, while being required to handle other disease prevention and healthcare tasks. With such a heavy workload, contact tracing remains hugely challenging for health workers with the considerable amount of strategies, skills and knowledge it demands.

## References

1. WHO. Questions and answers on reporting, partner notification and disclosure of HIV serostatus and/or AIDS, public health and human rights implications, 1999.
2. Ontario Ministry of Health and Long-Term Care/Public Health Division/Provincial Infectious Diseases Advisory Committee. Sexually transmitted infections case management and contact tracing best practice recommendations. April 2009
3. Golden MR. HIV partner notification: A neglected prevention intervention. Sexually Transmitted Diseases. 29(8):472-5, August 2002.



4. Hogben M, McNally T, McPheeters M, et al. (2007). The effectiveness of HIV partner counseling and referral services in increasing identification of HIV-positive individuals. A systematic review. *American Journal of Preventive Medicine* 33(2 Suppl), S89-100.
5. Cohen DA, Wu SY, and Farley TA. Cost-effective allocation of government funds to prevent HIV infection, *Health Affairs*, Vol. 24, No. 4, July/August 2005, pp. 915–26.
6. Centers for Disease Control and Prevention. HIV Partner Counseling and Referral Services, April 2003. Available at: [http://www.cdc.gov/HIV/AIDS/prevention/program/Advancing\\_HIV\\_prevention/AHP\\_Overview/Interim\\_technical\\_Guidance\\_for\\_selected\\_Interventions](http://www.cdc.gov/HIV/AIDS/prevention/program/Advancing_HIV_prevention/AHP_Overview/Interim_technical_Guidance_for_selected_Interventions)
7. Centers for Disease Control and Prevention. Program Operations Guidelines for STD Prevention, Partner Services. Atlanta, GA: CDC; 2001.
8. Macke BA, Maher JE. Partner notification in the United States : An evidence-based review. *Am J Prev Med* 1999; 17(3): 230-42.
9. Apoola A, Radcliffe KW, Das S, et al. Patient preferences for partner notification, *Sexually Transmitted Infections*, 2006; 82:327-9.
10. Wright A, Chippindale S, Mercey D, et al. Investigation into the acceptability and effectiveness of a new contact slip in the management of *Chlamydia trachomatis* at a London genitourinary medicine clinic. *Sexually Transmitted Infections*, 2002;78: 422–424.
11. Levine DK, Klausner JD, Kent C, et al. inSPOT.org: A unique online partner notification system. 2006 National STD Prevention Conference; 9 May 2006; Jacksonville, Florida, United States. Available at: <http://cdc.confex.com/cdc/std2006/techprogram/P10691.HTM>.
12. Australasian Society for HIV Medicine Inc. Australasian Contact Tracing Manual, Edition 3. Commonwealth of Australia, 2006. ISBN 1 74186 065 2, 2006.
13. National AIDS Trust. HIV Partner Notification: a missed opportunity? May 2012. Available at: <http://www.nat.org.uk/News-and-Media/Press-Releases/2012/May/Partner%20notification.aspx>
14. Report on HIV partner notification activities New York State Department of Health, 2004. Available at: [http://www.health.ny.gov/diseases/aids/reports/2004/partner\\_notification\\_report.htm](http://www.health.ny.gov/diseases/aids/reports/2004/partner_notification_report.htm)
15. Grinstead OA, et al. Positive and negative life events after counseling and testing: the Voluntary HIV-1 Counselling and Testing Efficacy Study. *AIDS*, 2001; 15:1045-52.
16. Stempel RR, Moulton JM, Moss A. Self-disclosure of HIV-1 antibody test results: the San Francisco General Hospital Cohort. *AIDS Educ Prev*, 1995; 7:116-23.
17. HIV status disclosure to sexual partners: rates, barriers and outcomes for women. WHO Document summary, 2004. Available at: <http://www.who.int/gender/documents/en/>

## The Analysis of Surveillance and Effectiveness of the “Friendly, Healthy and Safe Business Certification Program” for Gay Saunas

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### Abstract

The men who have sexual activities with men are the primary risk group for HIV infection in Taiwan. Gay sauna is a principal place for men to have homosexual activities, and the transmission rate for sexually transmitted disease is high. In 2011, the “friendly, healthy and safe business certification program” for gay saunas has been launched with the intervention of “Sex Police: The surveillance and guidance of safe sexual activity.” This program urges consumers to use condoms during sexual activities. The purposes of this research are: (1) to understand each sauna’s physical features and AIDS-related policies and services; (2) to understand the traits and risk behavior of customers in saunas; and (3) to compare the effectiveness of the “friendly, healthy and safe business certification program” before and after in order to evaluate the policy and formulate health education strategies in the future. Each sauna provides condoms when the consumers enter, and condoms are often placed at the counter. The owners and the employees wish that the public sector can provide free condoms, that the “friendly, healthy and safe business certification program” can be more differentiable, and that the way of certification can be more transparent and standardized. There is no significant difference between certificated and uncertified saunas in terms of their customers’ age, sexual history, sexual health during the past 6 months, and levels of recreational drug use. With respect to the acquirement of condoms, the onsite spots for accessing condoms are more diverse in the certified saunas than the uncertified ones. In addition, the numbers of people having oral sex without condoms differ significantly, as there are more people having oral sex without condoms in certified saunas. This research finds that the average age of the consumers is 34.35 years, and the proportion of consumers under 20 years old is only about 4 %. The results show that sauna is not the principal place for young gays to have sex anymore, but it is still an important place for middle aged gays to develop sexual relationships.

**Key words:** Men who have sex with men, gay sauna, the use of condom, certification program

## Preface

Men who have sex with men (MSM) constitute the primary risk group for HIV infection globally. According to the statistics of WHO/UNAIDS, sexual activity is the main route of epidemic HIV infection worldwide[1], and the global HIV epidemiologic report shows that the number of people infected with HIV through MSM infection is continually increasing, including in developed countries such as the U.S.A, Canada, Australia and other developed countries, where MSM accounts for 40-70% of HIV infection. This phenomenon is gradually extending to underdeveloped countries, such as the Caribbean, Africa and Middle East, where transmission occurs mainly because anal copulation without condom is highly contagious and the higher density of infection in MSM's social networks[2]. Serologic Testing Algorithm for Recent Human Immunodeficiency Virus Seroconversion (STARHS) finds that MSM accounts for more than 50% of recent HIV infections[3-5]. According to the data from Taiwan Centers for Disease Control (TCDC), MSM accounted for 45.05% of the HIV/AIDS population in Taiwan by the end of 2012[6]. Observing the number of new HIV notifications each year during the past fifteen years, the trend of HIV infection among MSM is gradually rising, while the average annual growth rate is about 14%. Based on the sustaining average annual growth rate of 14%, it is estimated that new infection cases among MSM will exceed one thousand people by the year 2015. Therefore, in addition to monitoring the prevalence of HIV infection among MSM, promoting intervention measures to reduce risk behavior is an urgent task to prevent a rapid spread of the AIDS virus.

Gay sauna is an important activity place for MSM. Both international and domestic research indicates that the prevalence of sexual transmitted diseases (STDs) among the consumers is extremely high[7-11]. Taiwan's yearly research focusing on MSM shows that the prevalence of HIV infection is about 5-10%[12-14]. However, most of the current research in Taiwan focusing on MSM comes from particular places, such as gay bars[14] and saunas[14,15]. The risk factors for STDs/HIV infection among MSM include past history of sexual disease, drinking before sexual activities, engaging in anal copulation, having no regular sex partner and infrequent use of condoms[14,16]. Oral copulation without condoms (194/334, 58.1%) among MSM is a common risk behavior during sexual activities in saunas, and the risk factors for HIV infection are TPHA positive, HCV antibody positive and have used emerging addictive drugs[14]. Taiwan gay saunas serial research has discovered that access points to condoms are different from actual places where sexual activities occur [17]. Consequently, nongovernmental organizations and owners of gay saunas have cooperated in implementing the structural intervention of "Get the condom, Use it completely", which has been proven effective in reducing the prevalence of HIV infection[16].

Our country amended the Enforcement Rules of the AIDS Prevention and Control Act, Article 9-1, in February 5th, 2005, which mandates that owners of gay saunas must offer condoms. The Taiwan Centers for Disease Control, MOHW, has also been supportive of nongovernmental organizations offering free screening and consulting services to customers

at saunas. It has also promoted the “friendly, healthy and safe business certification program” aiming at gay saunas since 2011, complemented by the “Sex Police: The surveillance and guidance of safe sexual activity” initiative to increase men’s willingness to use condoms and the rates of proper condom use throughout sex, with business owners actively encouraging or intervening in condom use throughout sex among their consumers[18]. Up to the end of 2012, there are twelve gay saunas in the five special municipalities and Taoyuan region, and this research focuses on these saunas, based on Moos’ conceptual framework[19]. Moos thinks that in the social atmosphere an environment creates, personal traits will interact with the environment to produce or decide the results of the personal behavior, which includes four aspects:(1) supra personal, which refers to the characteristics of the employers and customers in a business locations; (2) institutional context, which refers to the history, scale and number of staff of a business; (3) physical features, which refers to the size of areas/rooms, their allocation and design, the atmosphere, the lighting, the music and the display of related information (such as posters for AIDS related health promotion); and (4) policies and services, which refers to the rules set by the business (such as bans on alcohol and drugs), services provided (screening service for STDs/HIV), and relationships with other nongovernmental organizations, public safety authorities or public health agencies. The purposes of this research are: (1) to understand each sauna’s physical features and AIDS-related policies and services; (2) to understand the traits and risk behavior of customers; (3) to compare the effectiveness of the “friendly, healthy and safe business certification program” before and after in order to evaluate the policy and formulate health education strategies in the future.

### **Materials and Methods**

This research is based on Moos’ conceptual framework[19] with twelve gay saunas being visited by observers examining if there is a “friendly, healthy and safe business certificate” displayed at the door or reception desk and asking if the sauna operator knows about the “friendly, healthy and safe business certification program” as ways to differentiate between certified or uncertified businesses.

From September to the end of November in 2012, seven owners and employees of gay saunas and ten customers had been interviewed using the snowball sampling method following an initial introduction by nongovernmental organizations. The owners and employees had been interviewed for twenty to forty minutes in an one-to-one fashion, and they were asked how they decide where to provide condoms and lubricants at their business venue, whether they understand issues related to the certificated program, what their attitude and position are toward recreational drug use by customers, what their expectations are with respect to the certificate, etc. In addition, they were asked about their views on the “friendly, healthy and safe business certification program”. After all the information was collected, we performed a descriptive analysis of the data.

Also, anonymous self-report questionnaires in paper form were randomly distributed to customers of the saunas in order to collect information about their condom usage and their mode of sexual activity. After the completed questionnaires were received, charts and a database were built and statistical analysis was conducted using the software SPSS 17.0. First, we computed descriptive statistics, such as frequency, percentage, average and so on to describe population variables, and then we used inferential statistics, such as the Chi-square test to investigate whether the intervention measures of the “friendly, healthy and safe business certification program” have any influence over condom usage and the mode of sexual activity among gay patrons of saunas.

## Results

### **Sauna’s physical features and AIDS-related policies and services:**

All saunas provide condoms but in different supply conditions (Table 1). All of them have posters of AIDS/STD-related health education information. All the saunas provide condoms upon entry. Among the saunas, Taipei A sauna and Taichung B sauna have more locations to deposit condoms, and those locations are the nearest to places where sexual activities may occur so it takes the least time to get a new condom after the condom given at entry being got when entering the sauna. The space of saunas in Central and Southern Taiwan is larger than the ones in the north so most of the owners add new locations, besides the reception desk, on each floor to reduce the time needed to get a condom for the customers’ convenience.

Except Taipei A sauna, which considers condoms and lubricants as necessary business expenses, all interviewed owners hope that local health bureaus can take the initiative to provide condoms. Although local health bureaus do provide condoms, the quantity and time of supply are unstable. The owners in Taichung and Kaohsiung regions not only cooperate with local health bureaus but also cooperate with local nongovernmental organizations in the long term. Those local nongovernmental organizations help the owners distribute condoms in a stable fashion, and they regularly and proactively ask sauna operators whether their stock is sufficient, how their recent pattern of condom distribution has been, when would be the most convenient time to send condom resupply, etc. In addition, they utilize the time of anonymous screening service to understand the saunas and the pattern of condom usage among customers, and therefore the condition of condom deposits in these two regions is better compared to businesses in other counties.

Most of the owners cooperate with at least one local health bureau or NGO to provide free anonymous screening, but only employees in gay saunas in Taichung and Kaohsiung proactively provide screening or related information, while others provide the information only when customers take the initiative to inquire.

The interviewed owners and employees hope that the “friendly, healthy and safe business certification program” can be more differentiable, that the process of certification can be more transparent and standardized, and that government departments can give certified businesses priority when distributing free condoms. All interviewed customers cannot clearly identify changes that have taken place after a business has applied for the certificate.

**Table 1. Provision of condoms, lubricants and AIDS/STD screening service with related health education information at saunas**

Saunas (code)	Display of the friendly, healthy and safe business certificate	Condoms	Lubricants	AIDS/STD poster	AIDS/STD screening
A	at reception desk	obtain everywhere	obtain everywhere	yes	provided by health bureau and NGO
B	at the wall beside the door	obtain at reception desk	obtain at reception desk	yes	provided by health bureau
C	at the stairway	obtain at reception desk	obtain at reception desk	yes	provided by health bureau
D	at the handle beside the door	obtain at reception desk	obtain at reception desk	yes	provided by health bureau and NGO
E	no display	obtain at reception desk	obtain at reception desk	yes	No
F	at the handle beside the door	dedicated location	dedicated location	yes	provided by health bureau and NGO
G	at the handle beside the door	dedicated location	dedicated location	yes	provided by health bureau and NGO
H	no display	vending machine	no	yes	provided by health bureau
I	no display	obtain at reception desk	no	yes	provided by health bureau
J	no display	obtain at reception desk, revolving door, and vending machine	no	yes	provided by health bureau and NGO
K	no display	obtain at reception desk	obtain at reception desk	yes	provided by health bureau
L	no display	obtain at reception desk	obtain at reception desk	yes	provided by health bureau

### The traits and risk behavior of customers in saunas

From September to November in 2012, 777 anonymous self-report questionnaires had been collected. There were 462 (59.5%) questionnaires from certified saunas and 315 (40.5%) questionnaires from uncertified saunas. The age, sexual history and other variables of the customers in the certified or uncertified saunas show no significant difference. The age of the customers range from 17 to 71 years, with the average age being 34.35 years and the median being 34.80. The most common relationship status of the customers is without regular partners 328 (42.2%). (Table 2)

**Table 2. Comparison of socio-demographic characteristics of customers of certificated and uncertified saunas**

Variables	Certified n(%) 462 (59.5)	Uncertified n(%) 315 (40.5)	Total n(%) 777 (100)	P value
<b>Education level</b>				<b>0.927</b>
Junior high school	20(4.3)	15(4.8)	35(45.5)	
Senior high school or vocational high school (specialized)	97(21.0)	62(19.7)	159(20.5)	
College or college of technology	258(55.8)	174(55.2)	432(55.6)	
Graduate school or above	87(18.8)	64(20.3)	151(19.4)	
<b>Sex partners in the past six months</b>				<b>0.785</b>
Male	389(84.2)	265(84.1)	654(84.2)	
Female	6(1.3)	6(1.9)	12(1.5)	
Male and female	67(14.5)	44(14.0)	111(14.3)	
<b>Relationship status</b>				<b>0.511</b>
Without regular partners	203(43.9)	125(39.7)	328(42.2)	
Married	113(24.5)	89(28.3)	202(26.0)	
With regular girlfriend	5(1.1)	2(0.6)	7(0.9)	
With regular boyfriend	141(30.5)	99(31.4)	240(30.9)	

### Self-reported sexual health, STD history, AIDS screening and recreational drug use in the past 6 months:

The sexual health condition during the past six months, STD history and other characteristics of the customers do not differ significantly between certified and uncertified saunas (Table 3). There were 68 people(8.8%) who haven't received AIDS screening and 709 people(91.2%) who have received the screening, with the average month since the last screening being 6.51 months. One hundred customers(12.9%) said that they have had uncomfortable experiences in their genital organs, and among them, 42 people had the most common injuries such as blisters, skin lesion and ulceration. There are 100 people who have

been diagnosed with gonorrhea, which accounts for the most common STD, and 22 people diagnosed with syphilis, which accounts for the second most common disease. The observers entered the saunas at off-peak time and asked the reception whether there are bans on taking illegal substances (MDMA). All answers were that the sauna forbids the use of illegal substances. In addition, some saunas post related warnings at a visible place at the reception, and some emphasize the bans on taking illegal drugs on their website. However, the self-reported experiences of taking illegal drugs of the surveyed customers indicate that there are 332 people who took Ecstasy and 154 people who took Ketamine, which constitute the two most consumed drugs (Table 3). In regards to the use of recreational drugs, there is no significant difference between certified and uncertified saunas.

**Table 3. Self-reports from customers of gay saunas about screening uptake and recreational drug use**

Variables	Certified n(%) 462 (59.5)	Uncertified n(%) 315 (40.5)	Total n(%) 777 (100)	P value
<b>Experience of voiding difficulties, dysuria, pus in urethra and blisters, skin lesion and ulceration in genital organs in the past six months</b>				<b>0.553</b>
No	409(88.5)	268(85.1)	677(87.1)	
Yes	53(11.5)	47(14.9)	100(12.9)	
<b>AIDS screening uptake</b>				
No	41(8.9)	27(8.6)	68(8.8)	
Yes	421(91.1)	288(91.4)	709(91.2)	
<b>Past diagnosis of STD by doctors</b>				<b>0.890</b>
No	386(83.5)	262(83.2)	648(83.4)	
Yes	76(16.5)	53(16.8)	129(16.6)	
Syphilis	15	7	22	
Gonorrhea	58	42	100	
Amoeba	6	4	10	
AIDS	10	8	18	
<b>Recreational drug use when in sauna</b>				<b>0.889</b>
No	259(56.1)	175(55.6)	434(55.9)	
Yes	203(43.9)	140(44.4)	343(44.1)	
Ecstasy	196	136	332	
Ketamine	91	63	154	
Amphetamine	2	1	3	
Marijuana	10	7	17	



**Condom use experience(Table 4):**

In regards to the locations to deposit condoms, it is easier to get the condoms at the reception, on the wall and at the entrance to the dark rooms in the certified stores. Taipei A sauna is the most convenient one because it deposits the condoms at the places where sexual activity easily occurs. For example, it provides condoms in dark rooms, at the entrance to the bedroom, or in a pop-up box hanging from the wall, and in addition, every room has lubricants. It lists replenishment of condoms and lubricants on the regular checking list for cleaning and resupplies them the soonest. In addition, it is the most convenient sauna for the consumers to obtain condoms and lubricants. The number of people who have oral copulation without condoms shows significant difference between the certified and uncertified saunas. The number of people with unprotected oral sex in the certified saunas is more than those in uncertified saunas.

**Table 4. Condom use experience of customers in gay saunas with and without the “friendly , healthy and safe business certificate”**

Variables	Certified n(%) 462 (59.5)	Uncertified n(%) 315 (40.5)	Total n (%) 777 (100)	P value
<b>Did you wear a condom when you go to the sauna today?</b>				<b>0.056</b>
No	336(72.7)	209(66.3)	545(70.1)	
Yes	126(27.3)	106(33.7.)	232(29.9)	
<b>Does the sauna provide condoms?</b>				<b>0.240</b>
No	23(5.0)	22(7.0)	45(5.8)	
Yes	439(95.0)	293(93.0)	732(94.2)	
<b>Where can you get condoms?</b>				<b>&lt;0.001</b>
Reception	329	181	510	
Shower room	14	10	24	
Bed room	244	93	244	
Lobby	335	219	554	
Pop-up box hanging on the wall	51	1	52	
Entrance to the dark rooms	115	0	115	
Others	23	16	39	
<b>How many people did you have oral sex without condoms during the most recent sauna visit? (the average)</b>	4.14	3.13		<b>&lt;0.001</b>
<b>How many people did you have anal sex without condoms during the most recent sauna visit? (the average)</b>	1.32	1.57		<b>0.228</b>

## Discussion

The average age for the customers in twelve saunas is 34.35 years old. The consumers under 20 years old only account for 4 %, and there are 259(33.3%) people who are between 21-29 years old. The results show that sauna is no longer the place for young gays to have sex, but it is still an important place for middle aged gays to develop sexual relationships. Teenagers and party drug users seldom choose saunas as the place for sexual activity. When implementing the certification program, eight hosts of home parties express their willingness to apply for the “friendly, healthy and safe business certificate,” which will make their parties more attractive and allow the customers to have more fun and feel at ease.

This investigation finds that there are only 68(8.8%) people who haven't had AIDS screening, which is much fewer than before. [14, 17]Gonorrhea accounts for the most common STD being diagnosed, but its symptoms and infection routes still remain unclear. Most of the patients buy the drugs in the pharmacy themselves and never go to the special clinic for diagnosis or stop the treatment once the symptoms have been relieved. This phenomenon can be a reference for designing future health education and promotion programs.

As many nongovernmental organizations have received long term support from TCDC to enter gay saunas to provide free screening and consulting services, many saunas have actively participated in AIDS prevention so there is no significant difference between certified and uncertified saunas. However, when comparing two kinds of saunas, there are more diverse places to obtain condoms in the certified saunas with the “friendly, healthy and safe business certificate” than in the uncertified ones, it indicating that the “friendly, healthy and safe business certificate” still has certain protection and effectiveness for customers' health.

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## References

1. UNAIDS. 2012 UNAIDS Report on the Global AIDS Epidemic. Joint United Nations Programme on HIV/AIDS (UNAIDS). World Health Organization (WHO): Geneva 2012.
2. Beyrer, C., Stefan D Baral, FRCPC et al., Global epidemiology of HIV infection in men who have sex with men. *Lancet* 2012; 380(9839):367-77.
3. Hall, H.I., Song R, Rhodes P, et al., Estimation of HIV incidence in the United States. *JAMA* 2008; 300(5): 520-9.
4. Li, S.W., Zhang XY, Li XX et al., Detection of recent HIV-1 infections among men who have sex with men in Beijing during 2005 - 2006. *Chin Med J (Engl)* 2008; 121(12):1105-8.
5. Fisher, M., Pao D, Murphy G et al., Serological testing algorithm shows rising HIV incidence in a UK cohort of men who have sex with men: 10 years application. *AIDS* 2007; 21(17): 2309-14.
6. TCDC. Updated HIV/AIDS surveillance report in Taiwan. 2012 Sept 30, 2011 [cited 2012 Dec 31, 2012]; Available from: <http://www.cdc.gov.tw/info.aspx?treeid=1f07e8862ba550cf&nowtreeid=6c5ea6d932836f74&tid=4D59359AFFA04851>.
7. Bleeker, A., R A Coutinho, J Bakker-Kok, D Tio et al., Prevalence of syphilis and hepatitis B among homosexual men in two saunas in Amsterdam. *Br J Vener Dis* 1981; 57(3): 196-9.
8. Lumey, L.H., J. Kok, et al., Coutinho, Screening for syphilis among homosexual men in bars and saunas in Amsterdam. *Br J Vener Dis* 1982; 58(6): 402-4.
9. Binson, D., Woods WJ, Pollack L et al., Differential HIV risk in bathhouses and public cruising areas. *Am J Public Health* 2001; 91(9):1482-6.
10. Van Beneden, C.A., O'Brien K, Modesitt S et al., Sexual behaviors in an urban bathhouse 15 years into the HIV epidemic. *J Acquir Immune Defic Syndr* 2002; 30(5): 522-6.
11. Lister, N.A., Smith A, Tabrizi S et al., Screening for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* in men who have sex with men at male-only saunas. *Sex Transm Dis* 2003; 30(12): 886-9.
12. Chen, Y.M. and S.H. Kuo, HIV-1 in Taiwan. *Lancet* 2007; 369(9562): 623-5.
13. Ko, N.Y., Hsin-Hsin Chung, Shun-Jen Chang et al., The relationship between the self-efficacy, perceived AIDS threat, and sexual behaviors - analysis of 108 male homosexuals in southern Taiwan. *Journal of Nursing Research* 1996; 4(1): 285-297.
14. Ko, N.Y., Lee HC, Chang JL et al., Prevalence of human immunodeficiency virus and sexually transmitted infections and risky sexual behaviors among men visiting gay bathhouses in Taiwan. *Sex Transm Dis* 2006; 33(8): 467-73.
15. Ko, N.Y., Lee HC, Chang JL et al., Condom availability in Taiwanese gay bathhouses: the right things in the wrong places. *AIDS Educ Prev* 2008; 20(4): 338-46.

16. Ko, N.Y., HC Lee, CC Hung et al., Effects of Structure-level Intervention on Condom Availability and Sexual Behaviors for Gay Bathhouses Attendees. *AIDS Care*2009; 21(12): 1499-1507.
17. Ko, N.Y., et HC Lee, JL Chang al., Condom availability in Taiwanese gay bathhouses: the right things in the wrong places. *AIDS Educ Prev*2008; 20(4): 338-46.
18. Huang HY, Yang YW, Huang KL,et al. Analysis of “The Pilot Study of Promoting MSM to Use Condoms in Special Settings in 2011.Taiwan Epidemiol Bull, 2012;28(8):135-151
19. Moos, R.H. and S. Lemke, Evaluating residential facilities: The multiphasic environmental assessment procedure. Thousand Oaks: CA: Sage Publications. 1996.

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