

## Online CHAIN MSM Survey

### Willingness and influencing factors for usage of PrEP among MSM

**Abstract: Objectives** Understand the willingness and influencing factors for the usage of PrEP among MSM in order to provide reference for future expansion of PrEP. **Methods** MSM were recruited through internet within two weeks to fill the online questionnaires, questions including demographic characteristics, the willingness towards PrEP and its impact to condom use, etc. Data were dually entered into database using EXCEL 2007 and analyzed with SPSS17.0. **Results** 32.7% of the respondents among 760 MSMs surveyed said they would like to use PrEP, average age is  $31.60 \pm 7.60$  years old. The main factors influencing the acceptance of PrEP among MSMs are the side effects, the price of the drugs, degree of understanding to PrEP and frequency of drug usage. **Conclusion** currently, MSMs don't understand the PrEP sufficiently, worries on the side effects and the price of the drugs will affect their willingness to use PrEP.

**Keywords:** MSM; PrEP; Willingness of usage; Influencing factors

Pre-Exposure Prophylaxis(PrEP ) of HIV is a mono or multiple usage of ARVs drugs before or during potential HIV exposure among HIV negative individuals with high risk of HIV infection in order to reduce the risk of HIV infection. Compared with the main HIV prevention measures such as condom use and circumcision, the PrEP may become a real HIV prevention measure beneficial both for men and women, meanwhile, this measure can provide universal protection for HIV transmission through sexual behavior, oral mucosa, blood and body fluid, this is obviously better than other prevention measures. PrEP is an experimental HIV prevention strategy which is in the stage of clinical trial whose effectiveness is under proving. Part of the clinic trials conducted in Thailand and Botswana showed it is an effective prevention strategy. MSMs are high risk populations of HIV infection, in order to understand the willingness of the usage and influencing factors of PrEP among MSMs, provide

reference on PrEP expansion in future, MSMs were recruited through internet to conduct this survey.

## 1 subjects and methods

**1.1 subjects** the subjects of this study are MSMs who is over 18 years old.

**1.2 Methods** During Nov. 27 to Dec. 17, 2013, questionnaires were used in Guangtong MSM website for the survey with informed consent by all subjects surveyed. Questions including demographic characteristics, the willingness towards PrEP and its impact to condom use, etc. All respondents to the questionnaire were registered website users, personal information were provided for tracking. EXCEL 2007 was used to establish database with dual data entry, SPSS 17.0 was used to analyze the data.

## 2 Results

**2.1 Demographic characteristics** 887 persons participated in the questionnaires filling, among them, 116 persons don't like to complete the questionnaires, one was female, 10 persons were men who have sex only with women, these unqualified subjects were removed from the database, totally 760 effective questionnaires were collected.

The youngest is 18 years old, and the oldest is 60 years old, average age is  $31.60 \pm 7.60$ ; Their current relationship status are mainly single with college graduate or more education, annual income are within 60,000 RMB, have sex with men only, most of them considered themselves as gay. Details can be seen from the table 1.

**Table 1 Demography features of surveyed MSM**

Indicators	Group	No	Percentage
Current relationship status	single	442	58.2
	In relationship with a man	227	29.9
	In relationship with a women	72	9.7
	Refuse to answer	17	2.2
Education	Primary school	2	0.3
	Junior High School	31	4.1
	High School/GED	121	15.9
		238	31.3

	Some College/Technical School		
	College Graduate or More	362	47.6
	Refuse to Answer	6	0.8
Annual income	Under 10000 RMB	146	19.2
	Under 20000 RMB	101	13.3
	Under 60000 RMB	212	27.9
	Under 150000 RMB	173	22.8
	Higher than 150000 RMB	71	9.3
	Refuse to answer	57	7.5
Consider yourself to be	A man who has sex with men only	557	73.3
	A man who has sex with women only	188	24.7
	Refuse to answer	15	2.0
Consider yourself to be	Gay	587	77.2
	Bisexual	162	21.3
	Straight	2	0.3
	Refuse to answer	9	1.2

**2.2 PrEP acceptance status** 72.8% of the respondents said they “fully understand” and “mostly understand” the PrEP content introduced on the website, indicating that most of them can understand, **but only 243 persons said they will use PrEP, account for 32.7%.** Among them, people select unconditional use of PrEP when “PrEP is free or inexpensive” and “PrEP drugs can easily be obtained”, the proportion are 18.7% and 18.2% respectively. 61.0% of the respondents answered “Yes, definitely” or “Yes, probably” to take daily oral PrEP. For the side effects of the drugs, 50.3% and 37.1% of the respondents answered “Yes, definitely” or “Yes, probably” when it cause mild temporary side effects. After using PrEP, 70.9% of the respondents said they will use the condoms the same as now when single, 62.9% of the respondents said they will use condom the same as now when in a relationship, 17.4% and 27.7% of them said will less use condom. Details can be seen in table 2.

**Table 2 PrEP acceptance status among MSM**

Indicators	Group	No	Percentage
Understand to PrEP (N=758)	Completely understand	191	25.2
	Mostly understand	361	47.6
	Understand a little bit	157	20.7
	Don't understand at all	49	6.5

Would you use PrEP (N=742)	Yes	243	32.7
	No	249	33.6
	Don't know	250	33.7
Condition for use of PrEP (N=758)	Main partner was HIV-negative	90	11.9
	Main partner was HIV-positive	74	9.8
	I was in an open relationship with an HIV-negative person	74	9.8
	I was in an open relationship with an HIV-positive person	56	7.4
	I don't have main partner	108	14.2
	I don't like/want to use condoms	108	14.2
	PrEP is free/inexpensive	142	18.7
	PrEP has no side effects	104	13.7
	PrEP drugs are easy to obtain	138	18.2
	I would never use PrEP	7	0.9
Willingness for daily oral PrEP (N=500)	Yes, definitely	157	31.4
	Yes, probably	148	29.6
	No, probably not	82	16.4
	No, definitely not	17	3.4
	Don't know	96	19.2
If use with mild temporary side effects of PrEP (N=505)	Yes, definitely	80	15.8
	Yes, probably	174	34.5
	No, probably not	161	31.9
	No, definitely not	29	5.7
	Don't know	61	12.1
If use PrEP with temporary side effects (N=504)	Yes, definitely	70	13.9
	Yes, probably	117	23.2
	No, probably not	192	38.1
	No, definitely not	75	14.9
	Don't know	50	9.9
Condom use frequency for sexually active single after using PrEP (N=499)	Less often	87	17.4
	The same as now	354	70.9
	More often	58	11.6
Condom using frequency when in a relationship after using PrEP (N=502)	Less often	139	27.7
	The same as now	316	62.9
	More often	47	9.4

**2.3 Factors influencing PrEP acceptance** Classify the willingness of PrEP into two categories. For those who would like to use PrEP belong to have willingness, for those who “will not use” and “don't know” belong to have no

willingness. After Chi-square(  $\chi^2$  ) examination, factors related with PrEP acceptance are mainly economic condition and understanding to PrEP contents, people with 60,000-150,000RMB of annual income have the lowest PrEP acceptance( $P=0.002$ ), understand the PrEP a little bit or don't understand have the low PrEP acceptance.( $P<0.001$ ). Details can be seen in table 3.

**Table 2 Mono factor analysis for PrEP acceptance among MSMs**

Indicators	Group	No (%)	$\chi^2$ value	P value
age (N=760)	$\leq 35$	181 (31.7)	0.08	0.788
	$>35$	62 (32.8)		
Current relationship status (N=758)	single	150 (33.9)	4.427	0.219
	Have main male partners	68 (30.0)		
	Have main femal partners	23 (31.1)		
Education (N=759)	Primary school	0 (0)	6.765	0.239
	Junior high school	9 (29.0)		
	High school/GED	48 (39.7)		
	Some college/technical school	80 (33.6)		
	Coleage graduate or more	105 (29.0)		
Annual income (N=746)	Under 10,000 RMB	53 (36.3)	19.572	0.002
	Under 20,000 RMB	46 (45.5)		
	Under 60,000 RMB	67 (31.6)		
	Under 150,000 RMB	38 (22.0)		
	Higher than 150,000 RMB	25 (35.2)		
Sexual behavior (N=757)	Have sex with men only	182 (32.7)	1.224	0.542
	Have sex with both men and women	58 (30.9)		
Consider your self as (N=749)	Gay	187 (31.9)	3.036	0.386
	Straight	55 (34.0)		
Understanding to PrEP (N=748)	Completely understand	85 (44.5)	26.220	0.000
	Mostly understand	111 (30.7)		
	Understand a little bit	41 (26.1)		
	Don' t understand	6 (12.2)		

For those who don't like to use PrEP, we invite the respondents to list 3 reasons, analysis found that the main reasons are: worry about the side effects to their health, safe sexual behaviors such as persistent use of condoms, the inconvenience of daily drug taking, privacy exposure, HIV can't be prevented

completely with PrEP only, as well as worry about the unaffordable high price of PrEP drugs. For those who don't like to take daily oral PrEP drugs, the reasons include: worry about the side effects of the drugs, regular drug taking is troublesome and affect life quality, don't have high risk behavior everyday and thus don't need to take PrEP drugs every day.

### 3 Discussion

In this survey, 32.7% of the respondents said they would like to use PrEP, it's lower than related domestic studies which is 47%-74%<sup>[1-3]</sup>, it may be because that this survey was a website based respondents recruiting and questionnaire filling, due to lack of face to face communication, and thus made the respondents can't fully understand the PrEP.

In this study we found that worry about the side effects of the drugs to their health will affect the PrEP acceptance. 49.7% of the respondents will not use PrEP if it cause mild temporary side effects, the percentage of respondents who will not use PrEP will increase to 62.9% if the drugs cause temporary side effects. Reasons for not using PrEP collected from self statement also indicate the worry about the side effects of the PrEP drugs, this is similar to related domestic surveys among FSWs. This result indicates that education on explanation of the side effects of the drugs and reduction of their worries are necessary works for future expansion of PrEP.

The price of the PrEP drugs is also a main factor that influence the PrEP acceptance, most of the respondents said they can't afford very high price of the drugs, meanwhile, the survey also indicated that the economic condition influenced the PrEP acceptance, people with annual income of 60,000 to 150,000 RMB have the lowest acceptance of PrEP, while people with annual income of more than 150,000RMB are more tolerant to high drug price<sup>[5]</sup>. This indicates that the PrEP drugs price development must consider the affordability of the target populations in future PrEP expansion, aid and supplement from government investment is needed.

The understanding of the target populations to PrEP also influences the PrEP acceptance. For MSMs who don't fully understand this prevention measure,

they can't recognize the importance of this measure on HIV prevention, part of the respondents consider themselves have no HIV infection risk when they use condoms and have fixed sexual partners, there is no need to take additional drugs to prevent HIV infection, this is similar with results of other domestic surveys among fix sexual partners of HIV-positive persons<sup>[6]</sup>. It indicates that our future education should emphasize on better effectiveness and necessity of the combination of PrEP with other prevention measures. Frequency of the PrEP drugs taking heavily influences the PrEP adherence aong MSMs. The target populations consider daily oral drug taking will influence their quality of lives and even expose their privacy. The development of less frequency PrEP drugs will increase the willingness of PrEP usage and adherence. <sup>[7]</sup>。

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