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Available online at: http://www.iajps.com ***Research Article***

RETROSPECTIVE STUDY FOR ANALYSIS OF SYPHILIS IN XINJIANG, CHINA

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Abstract:

Objective: *To determine the changing epidemiology of syphilis in Xinjiang area, China.*

Methods: *In this study males and female patients were included. The data was from the First Affiliated Hospital of Xinjiang Medical University, China. The data was extracted from the records. The reported cases from 2010-2014 in the First Affiliated Hospital of Xinjiang Medical University were extracted for the study. The cases were diagnosed by the serological testing. Their gender was also noted. On average the male patients were around 55% and female patients were around 45% respectively. The type of syphilis was also recorded. The results are presented in the percentages of the total syphilis cases.*

Results: *Out of the total reported cases of syphilis from 2010 to 2014, majority of the cases were latent syphilis having an overall percentage of 89.2. Overall, the percentages of primary (6.21%), secondary (2.2%), congenital (1.97%) and tertiary (0.56%) were less than 11%. The primary syphilis was found the second most common type of syphilis in Xinjiang area.*

Conclusion: *The reported cases of syphilis were higher in male patients in 2010 with higher number of females and latent syphilis. The number of congenital syphilis was lower in 2010. The number syphilis cases were almost similar 2011 with higher number of female cases and latent syphilis. The reported cases in 2012-2014 were almost as in 2011.*

Key words: *Syphilis, Epidemiology, Latent syphilis.*

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INTRODUCTION:

Syphilis is a systemic human disease due to Treponema pallidum subsppallidum (T. pallidum) and classified as acquired or congenital. Acquired syphilis (usually by sexual contact) is divided into early and late syphilis. Early syphilis includes primary, secondary and early latent syphilis. The European Centre for Disease Prevention and Control (ECDC) defines early syphilis (infectious syphilis) as syphilis acquired <1 year previously and the World Health Organisation (WHO) as syphilis acquired <2 years previously. Late syphilis includes late latent and tertiary syphilis (gummatous, cardiovascular and neurosyphilis). The ECDC defines late syphilis as syphilis acquired >1 year previously and the WHO as syphilis acquired >2 years previously. Congenital syphilis is divided into early (first 2 years) and late, including stigmata of congenital syphilis [1].

Syphilis is believed to have infected 12 million people in 1999 with greater than 90% of cases in the developing world [2]. It affects between 700,000 and 1.6 million pregnancies a year resulting in spontaneous abortions, stillbirths, and congenital syphilis. In Sub-Saharan Africa, syphilis contributes to approximately 20% of perinatal deaths [3].

Syphilis has drawn many attentions because of its harm to human beings; researches around this issue are generally divided into three categories. First one is the group who are investigating the underlying mechanics of the disease. The second group is trying to find some medicine, cure plans or the bad situations may have of syphilis. The last group of researchers is to study the behaviors of infected people, in order to make predictions or find spread patterns in the network.

In China, rates of syphilis have been increased from the 1990s to the 2010s. This occurred after a successful campaign to reduce rates was carried out in the 1950s. Rates of diagnosis are higher in urban coastal areas. This may be due to sexual practices or better diagnosis in these areas [4].

The presents hospital based cross-sectional study was designed to determine the changing epidemiology of syphilis in Xinjiang area, China.

MATERIAL AND METHODS:

In this study, males and female patients were included. The data was from the First Affiliated Hospital of Xinjiang Medical University, China. The data was extracted from the records. The reported cases from 2010-2014 in the First Affiliated Hospital of Xinjiang Medical University were extracted for the study. The cases were diagnosed by the serological testing. The type of syphilis was also recorded. The results are presented in the percentages of the total syphilis cases.

RESULTS:

The reported cases of syphilis from the year 2010 to 2014 were included in the study. Out of the total reported cases of syphilis from 2010 to 2014 more patients were male as compared to female. The reported cases of syphilis were higher in the year 2011 (35.8%) than 2010 (27.3%), 2012 (17.16%), 2013 (12.24%) and 2014 (7.5%).

Table-B shows the gender differences in the reported cases of syphilis from 2010-2014 in Xinjiang area. Overall, the percentages of males (55.05%) were higher than females (44.95%). There was not much difference observed in the reported cases of syphilis between male and female over the years.

Table-C presents the type of reported cases of syphilis from 2010-2014 in Xinjiang area. Majority of the cases were latent syphilis. Overall, the percentages of primary (6.21%), secondary (2.2%), congenital (1.97%) and tertiary (0.56%) were less than 11%. The year-wise analysis of the data showed that the percentage of latent syphilis was the commonest type of syphilis in all the years. The primary syphilis was found the second most common type of syphilis in Xinjiang area.

DISCUSSION:

Syphilis is caused by treponema pallidum and it is generally sexually transmitted. It has great impact on healthcare along with AIDS and other sexually transmitted diseases. Latent syphilis is diagnosed in patients with positive serologic reactions to treponema pallidum, but with no symptoms [5]. Because of no clinical symptoms, patients are often under-diagnosed and result in delayed treatment, which can lead to neurological, cardiovascular, skeletal and visceral organ damage. Latent syphilis can occur when treponema pallidum initially infects human body or syphilis patients receive improper treatment [6].

The present study was conducted as per the records available in the First Affiliated Hospital of Xinjiang Medical University, hence, the results of this study cannot be generalized for the whole country. Therefore, it was not possible to compare the findings of this study with the other studies. A detailed

observation was conducted from year 2010 up to 2014 in which various patients which includes both males and female suffering from different types of syphilis were discussed.

2010:

Up to the end of year 2010, a total of 1258 patients were identified suffering with different types of syphilis. Among the patients 704 were males whereas remaining 554 were the females having a percentage of 56.6 and 44 respectively. Latent Syphilis was the most common disease among the patients with over 82.7 % whereas 10.4% patients were suffering from the primary syphilis. It was observed that overall the percentage of male patients were more as compared to female patients in almost all type of syphilis.

Table.1: Reported cases of syphilis in 2010 according to Gender

Sr.No	No of cases	Male		Female	
		No.	%	**No.**	**%**
1.	1258	704	56.0	**554**	44.0

Fig 1: Reported cases of Syphilis according to gender.

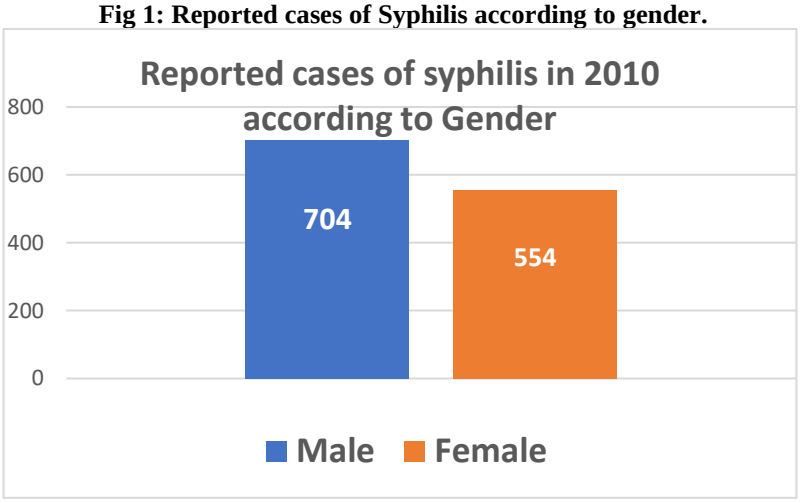
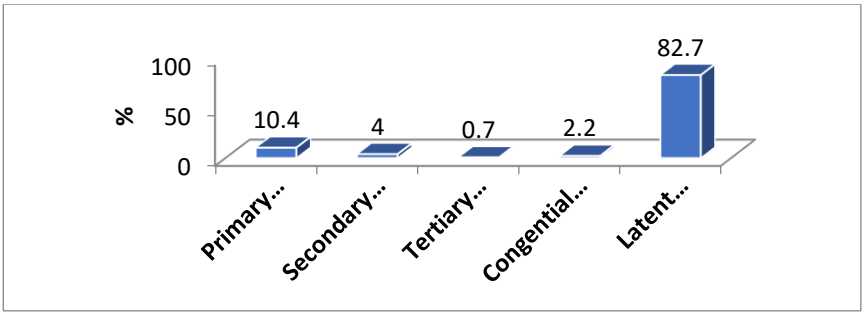


Table 2: Reported cases of type of syphilis in 2010

Type of syphilis	2010	
	No.	**%**
Primary syphilis	131	10.4
Secondary syphilis	50	4
Tertiary syphilis	9	0.7
Congenital syphilis	28	2.2
Latent syphilis	1040	82.7
Total	**1258**	100

Fig 2: Reported cases of type of syphilis in 2010



2011:

In the year 2011, a total of 1650 patients were identified suffering with different types of syphilis. Among the patients 914 were males whereas remaining 736 were the females having a percentage of 55.4 and 44.5 respectively. Latent Syphilis was the most common disease among the patients with over 86.2% whereas 7.6% patients were suffering from the primary syphilis. It was observed that overall the percentage of male patients were more as compared to female patients in almost all type of syphilis in most nations. The detailed information is given below:

Table.3: Reported cases of syphilis in 2011 according to Gender

Sr.No	No of cases	Male		Female		Unknown	
		No.	**%**	**No.**	**%**	**No.**	**%**
1.	1650	914	55.4	736	44.6	0	0

Fig 3: Reported cases of Syphilis according to gender in 2011.

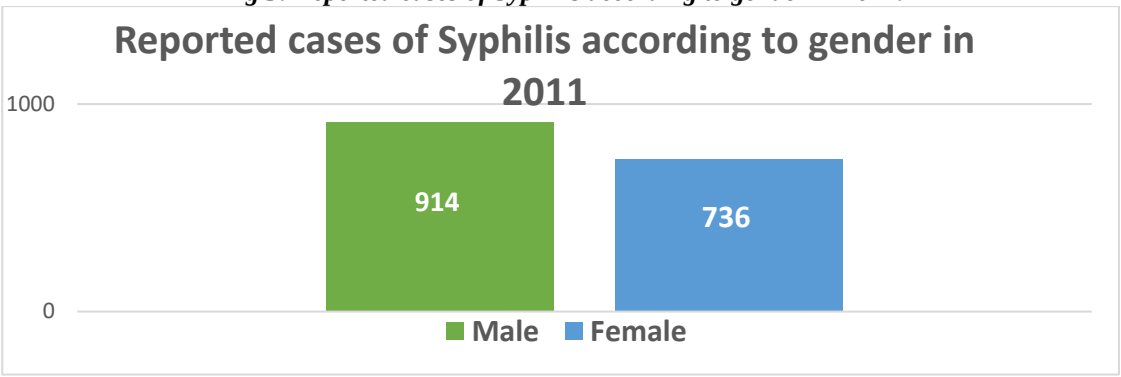
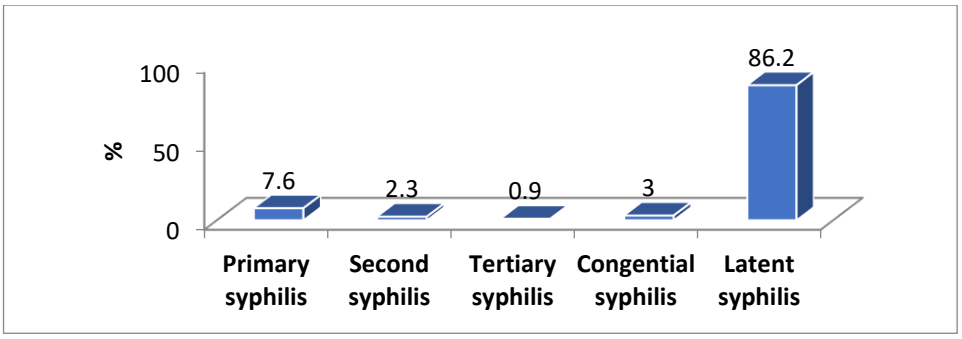


Table 4: Reported cases of type of syphilis in 2011

Type of syphilis	2011	
	No.	**%**
Primary syphilis	126	7.6
Secondary syphilis	38	2.3
Tertiary syphilis	14	0.9
Congenital syphilis	49	3.0
Latent syphilis	1423	86.2
Total	**1650**	**100.0**

Fig 4: Reported cases of type of syphilis in 2011.



2012:

Up to the end of year 2012, a total of 791 patients were identified suffering with different types of syphilis. Among the patients 440 were males whereas remaining 351 were the females having a percentage of 55.6 and 44.4 respectively. Latent Syphilis was the most common disease among the patients with over 93.8 % whereas 3.4% patients were suffering from the primary syphilis. It was observed that overall the percentage of male patients were more as compared to female patients in almost all type of syphilis.

Table.5: Reported cases of syphilis in 2012 according to Gender.

Sr.No	No of cases	Male		Female	
		No.	%	No.	%
1.	791	440	55.6	351	44.4

Figure.5: Reported cases of syphilis in 2012 according to Gender.

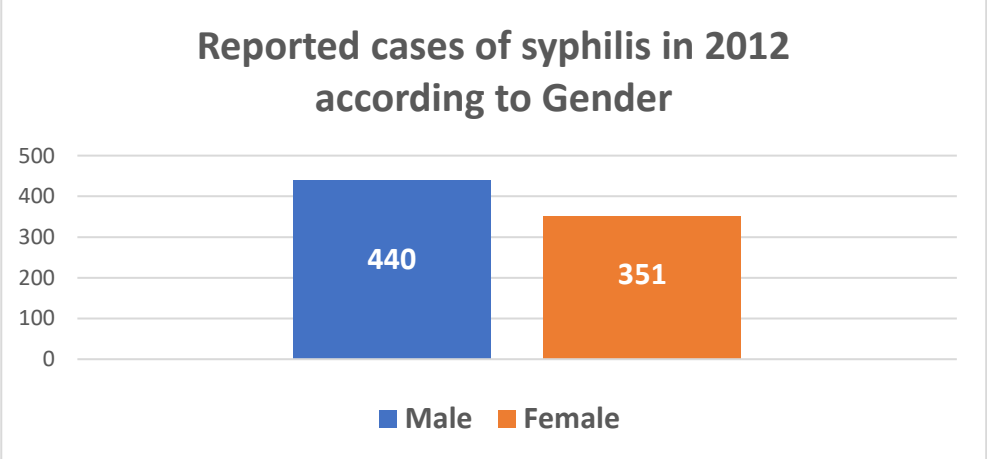
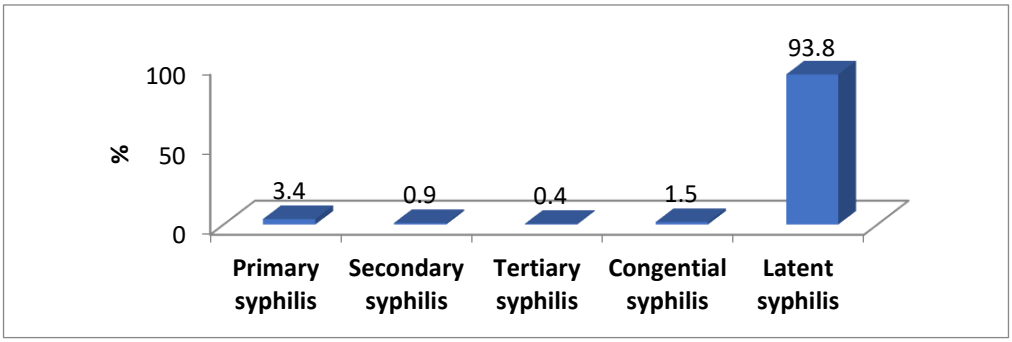


Table.6: Reported cases of type of syphilis in 2012.

Type of syphilis	2012	
	No.	**%**
Primary syphilis	27	3.4
Secondary syphilis	7	0.9
Tertiary syphilis	3	0.4
Congenital syphilis	12	1.5
Latent syphilis	742	93.8
Total	791	100.0

Fig 6: Reported cases of type of syphilis in 2012.



2013:

Up to the end of year 2013, a total of 564 patients were identified suffering with different types of syphilis. Among the patients 304 were males whereas remaining 260 were the females having a percentage of 53.9 and 46.1 respectively. Latent Syphilis was the most common disease among the patients with over 98.9 % whereas 0.5% patients were suffering from the secondary syphilis. It was observed that overall the percentage of male patients were more as compared to female patients in almost all type of syphilis.

Table.7: Reported cases of syphilis in 2013 according to Gender.

Sr.No	No of cases	Male		Female	
		No.	**%**	**No.**	**%**
1.	564	304	53.9	260	46.1

Figure.7: Reported cases of syphilis in 2013 according to Gender.

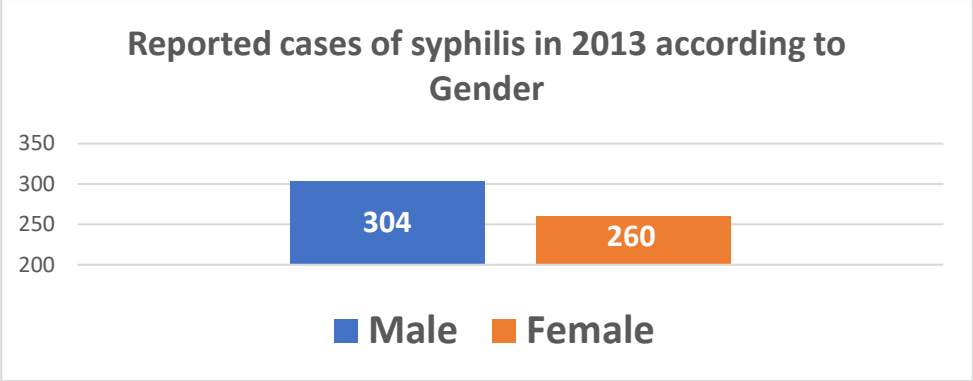
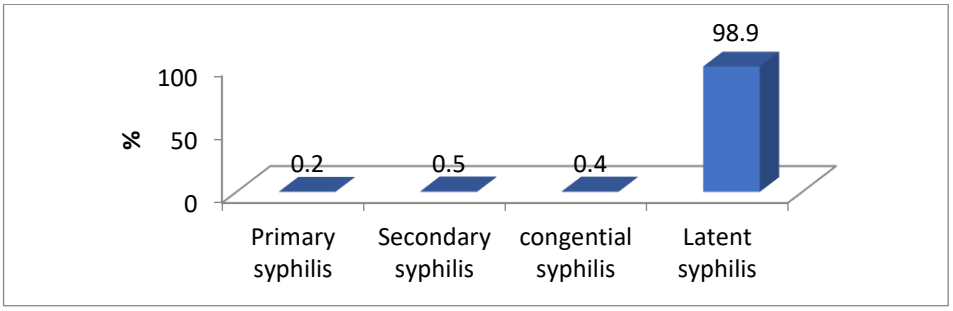


Table.8: Reported cases of type of syphilis in 2013.

Type of syphilis	2013	
	No.	%
Primary syphilis	1	0.2
Secondary syphilis	3	0.5
Congenital syphilis	2	0.4
Latent syphilis	558	98.9
Total	564	100.0

Figure.8: Reported cases of type of syphilis in 2013.



2014:

In the year 2014, a total of 346 patients were identified suffering with different types of syphilis. Among the patients 175 were males whereas remaining 171 were the females having a percentage of 50.6 and 49.4 respectively. Latent Syphilis was the most common disease among the patients with over 98.8 % whereas 0.9% patients were suffering from the secondary syphilis. It was observed that overall the percentage of male patients were more as compared to female patients in almost all type of syphilis.

Table.9: Reported cases of syphilis in 2014 according to Gender.

Sr.No	No of cases	Male		Female	
		No.	%	No.	%
1.	346	175	50.6	171	49.4

Figure.9: Reported cases of syphilis in 2014 according to Gender.

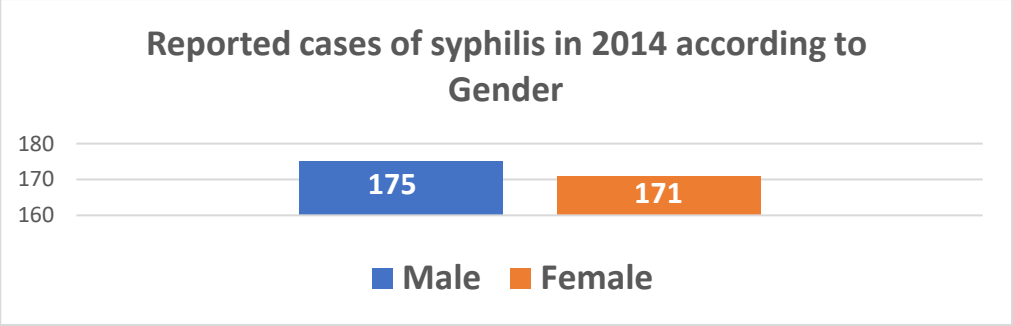
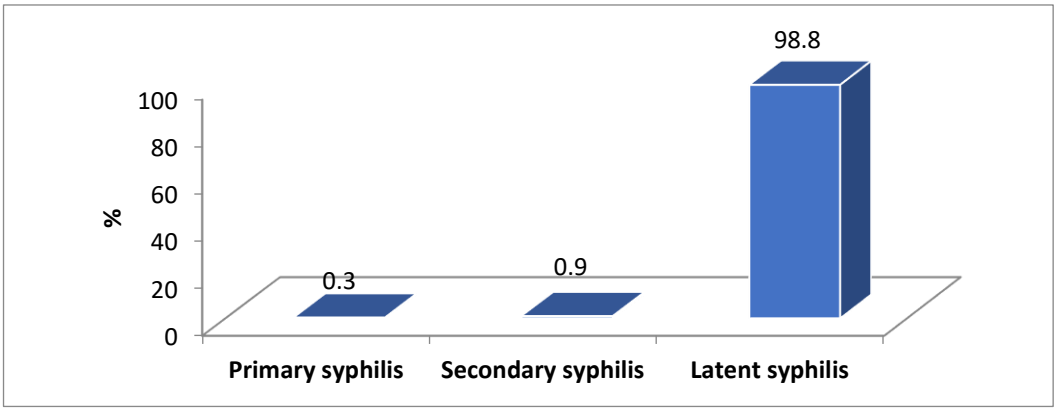


Table.10: Reported cases of type of syphilis in 2014.

Type of syphilis	2014	
	No.	%
Primary syphilis	1	0.3
Secondary syphilis	3	0.9
Latent syphilis	342	98.8
Total	**346**	**100.0**

Figure.10: Reported cases of type of syphilis in 2014.



In the present study, out of the total reported cases of syphilis from 2010 to 2014, 55.05 % were males and 44.95% were females. The reported cases of syphilis were higher in the year 2011 than 2010, 2012, 2013 and 2014 in Xinjiang area in this study. However, the percentages of males were higher than females in this study. In the present study, there was not much difference observed in the reported cases of syphilis between male and female over the years in Xinjiang area.

Table-A: Reported cases of syphilis from 2010-2014 in Xinjiang area

Year	No of cases and their respective Percentages	
	No.	%
2010	1258	27.30
2011	1650	35.80
2012	791	17.16
2013	564	12.24
2014	346	7.50
Total	**4609**	**100.0**

Table-B: Gender differences in the reported cases of syphilis from 2010-2014 in Xinjiang area

Year	Total no. of cases reported	Gender			
		Male		Female	
		No.	%	No.	%
2010	1258	704	55.9	554	44.1
2011	1650	914	55.4	736	44.6
2012	791	440	55.6	351	44.4
2013	564	304	54.9	260	45.2
2014	346	175	50.5	171	49.5
Total	**4609**	**2537**	**55.05**	**2072**	**44.95**

Table-C: Type of reported cases of syphilis from 2010-2014 in Xinjiang area

Type of syphilis	Years										Total (n=4609)	
	2010 (n=1258)		2011 (n=1650)		2012* (n=791)		2013 (n=564)		2014 (n=346)			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Primary syphilis	131	10.4	126	7.6	27	3.4	1	0.2	1	0.3	286	6.21
Secondary syphilis	50	4.0	38	2.3	7	0.9	3	0.5	3	0.9	101	2.2
Tertiary syphilis	9	0.7	14	0.9	3	0.4	0	0.0	0	0.0	26	0.56
Congenital syphilis	28	2.2	49	3.0	12	1.5	2	0.4	0	0.0	91	1.97
Latent syphilis	1040	82.7	1423	86.2	742	93.8	558	98.9	342	98.8	4105	89.06

In the present study, the majority of the cases were latent syphilis. Overall, the percentages of primary, secondary, congenital and tertiary syphilis were less than 11% in this study. In the present study, the year-wise analysis of the data showed that the percentage of latent syphilis was the commonest type of syphilis in all the years. The primary syphilis was found the second most common type of syphilis in Xinjiang area.

A number of studies have found higher syphilis prevalence among men who have sex with men

(MSM) STI clinic patients [7-9], and female sex workers [10]. Studies of syphilis among low-risk groups such as pregnant women have found a considerable burden of disease as well [11,12].

Demographic changes underway have transformed the composition and size of traditional high-risk groups, widening inroads for the expansion of syphilis [13]. Since the 1980s China has had a skewed sex ratio that demographers estimate has already caused a surplus of over 30 million unmarried men [14]. This group of largely poor, uneducated men will be underemployed, promoting rural-to-urban migration. Modeling studies [15,16] and qualitative research [17] suggest that these `surplus men' may have increased sexual risk, expanding demand for commercial sex.

The large burden of syphilis in China demands more epidemiological investigation, increased screening, integration of syphilis/HIV programs, expanded partner services, more effective behavioral interventions, and multisectorial commitment. In terms of epidemiology, there have been discrepant reports regarding the burden of congenital syphilis in many regions of the country. Data from antenatal surveillance sites revealed only a modest increase in syphilis prevalence in pregnant women although the number of congenital syphilis cases has continued to increase. Lack of standard diagnostics and misdiagnosis of congenital syphilis on the one hand and under-reporting of cases on the other emphasizes the need for further epidemiological work.

CONCLUSION:

The reported cases of syphilis were higher in 2010 with higher number of male patients and latent syphilis. The number of congenital syphilis was lower in 2010. The number syphilis cases were higher in female patients and the most common type was latent syphilis. The reported cases in 2012-2014 were almost as in 2011.

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