

# Syphilis : Fighting the Disease into the New Millennium

Dr. K. H. Lau

Social Hygiene Service (Venereology), Department of Health, Hong Kong

## ABSTRACT

*In Hong Kong, the Social Hygiene Service has witnessed a significant re-emergence of syphilis in recent years. From 1991 to 1998, the total incidence of the disease in the Service has increased more than three times. The majority of these new syphilitic patients suffered from early infectious syphilis as there has been significant increase of primary syphilis of about 14 times since 1991. Secondary and early latent syphilis have also increased of more than five and six times respectively in last eight years. There are numerous medico-social causes for the recent increase of syphilis in Hong Kong. Various strategies dealing with these adverse medico-social factors are being implemented in hope of halting the rising trend of syphilis into the next millennium. However, the ultimate control of the current problem depends on the cooperated effort among specialists within and without Hong Kong.*

**Keywords:** syphilis, early infectious, statistics, Hong Kong.

## INTRODUCTION

In Hong Kong, the incidence of syphilis has been rising silently in recent years. This review article attempts to outline the current situation of syphilis and to alert all physicians the increasing size of the problem which we are facing. Various medical and social causes account for the general increasing trend of all sexually transmitted diseases including syphilis. Strategies in controlling the disease are also discussed.

### History of the old timer

Syphilis is a very old disease of more than 500 years and it was believed to be acquired by Columbus' Spanish crew from the New World natives in 1490.<sup>1</sup> Those infected Spanish crew were employed by the army of Charles VII of France. As a result, the first epidemic of syphilis outbreaked in Italy in 1495 when Charles' army besieged Naples. Soon, major pandemic of syphilis occurred in Europe in 1497.<sup>2</sup> The Italians

called the disease "morbo gallico" - the French disease<sup>3</sup> while the French put the blame on the citizens of Naples and called it "le mal de Naples". The English somehow managed to pinpoint the Spanish origin of the disease from the Spanish mercenaries and named it the "Spanish disease". At its first appearance, the disease was very virulent and contagious. It ran an acute and rapidly deteriorating course and was often fatal in the secondary stage.<sup>2</sup> As a result, it was named as "the great pox", in contrast to the "less virulent" vaccinia which was considered as the younger brother of syphilis and hence named "the small pox". The name "syphilis" was first coined in 1530 by Girolamo Facastoro of Verona.<sup>4</sup> The name came from a Latin poem "Syphilis sive morbus Gallicus" which described a mythical shepherd named Syphilis who was granted the "French disease" as a punishment for cursing the gods. Hence the disease was named syphilis.

The advance of understanding syphilis occurred in 1838 when Richard, through 2500 human inoculations, successfully separated syphilis from gonorrhoea as two different diseases.<sup>4</sup> He also differentiated the primary, secondary and tertiary stages of syphilis. The pathogen of syphilis, *Treponema pallidum*, was first identified by Hoffman & Schaudinn in 1905.<sup>5</sup> Wassermann test was subsequently developed by Wassermann & Neisser in 1906 as the first syphilis serologic test.<sup>6</sup> The real advance in the treatment of syphilis occurred in 1943 when Mahoney advocated the use of penicillin in the treatment of syphilis.<sup>7</sup>

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Correspondence address:

Dr. K. H. Lau

Social Hygiene Service

3/F, Sai Ying Pun Jockey Club Clinic

134 Queen's Road West

Hong Kong

## INCIDENCE OF SYPHILIS

### In the West

The world-wide incidence of syphilis reached an all-time high during the World War II :- 90 cases per 100,000 population were reported in USA at that time. Within 10 years after the introduction of penicillin, the incidence had decreased significantly. In 1956, the incidence of syphilis reached its all-time low of 6,392 reported cases in USA (7 cases /100,000 population). The fall of incidence in the disease was so significant that the American Board of Dermatology & Syphilology and Archives of Dermatology & Syphilology at that time decided to drop the word " Syphilology" and give up the care of patient with sexually transmitted diseases. However, the American Board soon regretted about their decision as in late 1950-60's, the incidence of primary and secondary syphilis began to rise rapidly again, only to become stabilized at around 21,000 to 25,000 cases per year during the 1970-80's. During this period, despite a steady decline of new case of syphilis in heterosexual population, there was a pandemic outbreak of primary and secondary syphilis. This occurred in urban area such as New York in which half of all new cases were homosexual males.

### In Hong Kong

In Hong Kong, a phase-lagging situation similar to the States may be occurring. Comprehensive control programme and penicillin treatment was introduced in late 1960's in Hong Kong. Serological screening and dark ground examination to all genital ulcers were implemented in the Government Social Hygiene Service. Health visitors for contact & defaulter tracing were increased. Free and effective treatment was offered in all Social Hygiene Clinics. As a result, the incidence of syphilis reported in the Social Hygiene Service fell from around 1400 new cases per year during 1970's to the all-time low of around 300 cases in 1991 (Figure 1). Congenital syphilis decreased from over 100 new cases annually in early 1970's to no reported case in 1991.

## REVIVAL OF SYPHILIS

Recently, however, the Social Hygiene Service has witnessed a significant re-emergence of syphilis. From 1991 to 1998, the total incidence of the disease in the Service has increased: the incidence in 1998 was more than three times that in 1991. The reported new cases increased from 310 in 1991 to 1053 in 1998 (Table 1). The larger and steeper increase occurred between 1995-98 (Figure 1). This recent increase in incidence in syphilis was, in fact, part of the general increasing trend in *all* sexually transmitted diseases seen in recent years

in Hong Kong (Figure 2). With the exception of gonorrhoea, all sexually transmitted diseases, especially non-gonococcal urethritis and non-specific genital infection, increase significantly in the recent five years.

### Revival of early infectious disease

Looking more closely on the recent increasing trend of syphilis, it becomes obvious that the majority of these new syphilitic patients in Social Hygiene Service suffered from early infectious syphilis encompassing primary, secondary and early latent syphilis (Figure 3).

Over the last eight years from 1991 to 1998, there has been a tremendous increase in primary syphilis of more than 14 times. The number of new cases suffering from primary syphilis had increased from 20 cases in 1991 to 293 cases in 1998 (Table 1). In addition, there was also a significant increase of secondary syphilis of more than *five* times (Table 1), with the number of cases increased from 12 in 1991 to 69 in 1998. Similar significant increase of early latent syphilis of more than *six* times was noted. The number of patients with early latent syphilis had increased from 47 in 1991 to 314 in 1998.

If we consider primary, secondary and early latent syphilis as the early infectious form of disease and group them together (Table 1), there was a worrying trend of significant rise of more than eight times in this group of patients in the last *eight* years, in contrast to the relatively static number of new cases suffering from late latent and tertiary syphilis. The situation that majority of syphilitic patients in 1991 suffering from late latent disease (Figure 4), is now replaced by patients suffering from early infectious syphilis in 1998 (Figure 5). Furthermore, an equally worrying trend was the sporadic reappearance of congenital syphilis in recent years (Table 1).

## MEDICO-SOCIAL CAUSES FOR THE RISE

In order to understand the problem of rising trend of syphilis better, one must try to identify the various possible causes involved.

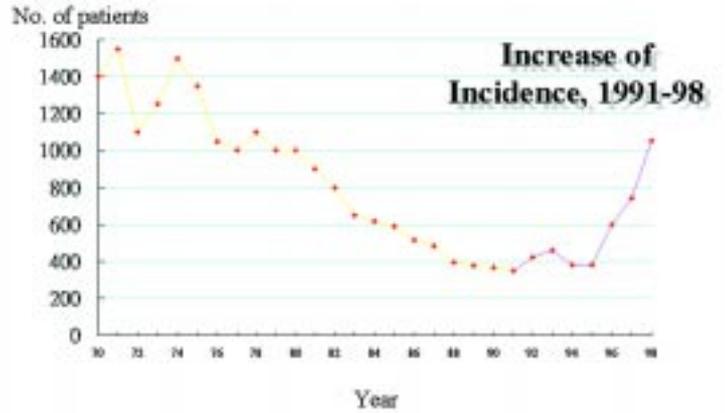
### Social causes

There are numerous social causes for the recent continuous increase of syphilis in Hong Kong. Our society is becoming more adaptive to the western social norm, including the open attitude towards sex. For example, there are increasing number of young adults practising high risk sexual behaviour. These changes of

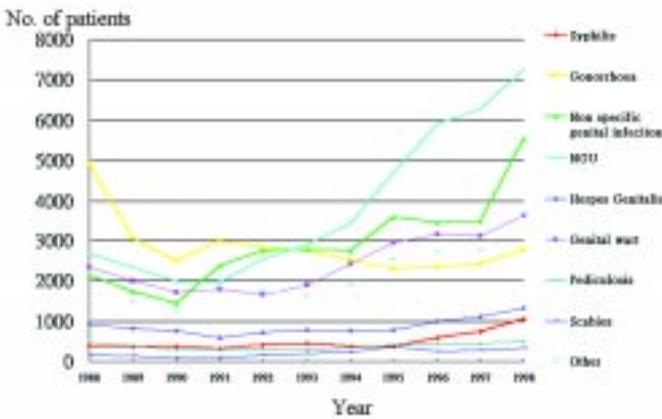
**Table 1. Annual Incidence of Syphilis in Social Hygiene Service, 1988-1998**

Year	88	89	90	91	92	93	94	95	96	97	1998	Increase in Early syphilis (compared 90 with 91)
<b>Syphilis</b>												
Total	395	370	306	310	420	457	381	381	599	744	1053	3.4x
Primary	30	22	18	20	16	18	25	44	151	229	293	14.7x
Secondary	12	17	11	12	17	12	13	30	44	85	69	5.6x
Early latent	64	65	71	47	82	89	48	60	113	166	314	6.7x
Early infectious	115	104	88	79	125	124	85	154	306	480	676	8.6x
Late latent	282	298	254	223	273	328	287	229	289	258	372	
All others	16	34	14	6	22	4	6	7	2	6	8	
<b>Congenital</b>												
Under 1 year	3	1	0	0	0	1	0	8	0	2	8	
Over 1 year	3	5	4	0	1	1	6	1	1	1	8	

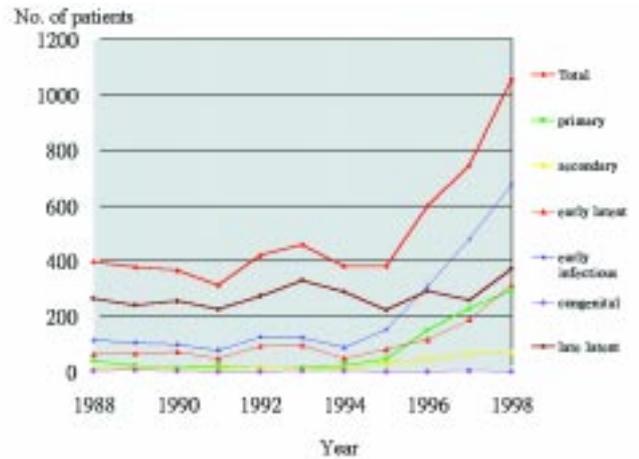
**Figure 1: Number of New Syphilis Cases in Social Hygiene Service in 1970-1998**



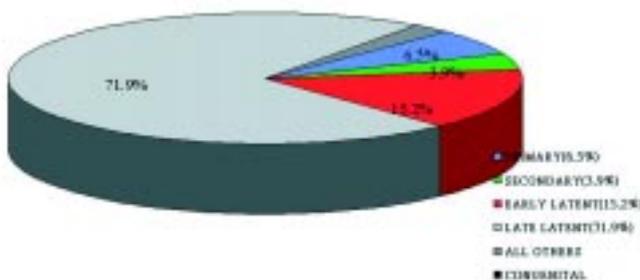
**Figure 2: Trend of STD in Social Hygiene Service in 1988-1998**



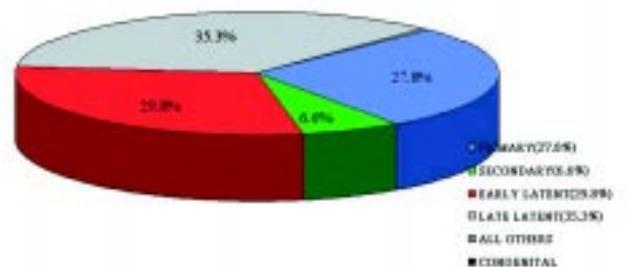
**Figure 3: Annual Incidence & Trends of Syphilis Subtypes**



**Figure 4: Subtypes of 310 New Cases of Syphilis in 1991**



**Figure 5: Subtypes of 1,053 New Cases of Syphilis in 1998**



attitude and behaviour towards liberal sexual contact may account for the steady increase in all sexually transmitted diseases seen in Hong Kong.

In addition, there are inadequate public awareness towards sexually transmitted diseases including syphilis. Mass media in recent year had put much emphasis on public education of AIDS and safe sex. However, various sexually transmitted diseases, such as syphilis, which have been increasing significantly in recent years, did not receive enough public attention from the media that they deserved. Many of our syphilitic patients presented to us very late as they, lacking any knowledge about sexually transmitted diseases, ignored their painless genital chancre which healed spontaneously. And they seek no medical attention. This gross ignorance has perhaps led to a significant spreading of the disease. The patients continuously infect their sexual partners, leading to an increasing reservoir of infectious cases in the community.

Hong Kong, furthermore, is an affluent society. With the unification of Hong Kong with Mainland China and the increasing importance of the status of our city internationally, there is an increasing population moving in and out of Hong Kong. Travel to and from urbanizing cities in Asian and southern China are most often. People were known to be more casual about sexual encounter abroad, hence increased their risk of acquiring sexually transmitted diseases. At the same time, there seems to be reservoirs of sexually transmitted diseases around our territory. Survey in the Social Hygiene Service had showed that about 60% of the sexually transmitted diseases reported in 1996 were contracted outside Hong Kong, especially in south east Asia and southern part of China.<sup>8</sup> The presence of reservoir outside Hong Kong

has made contact tracing and treatment for sexual partner almost impossible.

### Medical causes

On the other hand, medical factors also play an important role in the rapid rise of syphilis. The inadequate awareness of syphilis among the unwary doctors may contribute to the rise. We have come across patients being misdiagnosed by physicians whose index of suspicion on syphilis were not high enough. Furthermore, rightly diagnosed patients might not necessarily receive the optimal treatment. Many physicians only treat their syphilitic patients, while forgetting all about contact tracing and offering treatment to patient's sexual partners.

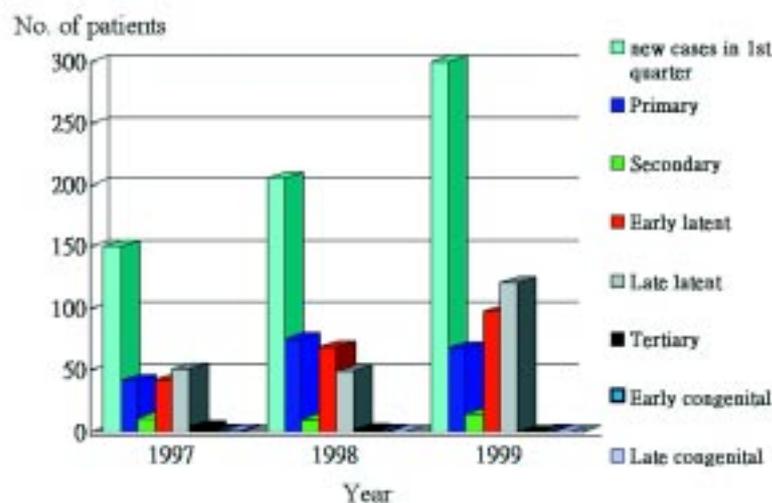
In addition, there is inadequate resource on public health education on sexually transmitted diseases, as well as the relative inability of the clinical service to reach the high risk groups (e.g. prostitutes, young teenager and frequent travelers who practice high risk sex). All of these medico-social factors interact with each others and weaken the control of sexually transmitted diseases including syphilis.

## SYPHILIS IN 1999

### Fighting the disease into the next Millennium

The continuous rising trend of syphilis is observed in the latest statistic: the incidence of the disease in the first quarter of 1999 in the Social Hygiene Service keeps on increasing when compared with the figures of the same period in the previous years (Figure 6)

Figure 6: Syphilis: Continuous Increase in 1st Quarter, 1999



Various strategies dealing with the above adverse medico-social factors are being implemented or reinforced by the Government in hope of halting the rising trend of syphilis. More resources will be allocated to health education to the public about safe sex practice and knowledge about syphilis and other sexually transmitted diseases. Accessible sexually transmitted diseases service are provided throughout the territory by the Government. Old and new Social Hygiene clinics are strategically located in different area to meet the demand of the population. They provide confidential, user-friendly and customer-oriented service free of charge to all Hong Kong citizens. Patients can simply present themselves with no need of any referral and are seen on the same day of registration. Genital ulcers suspicious of syphilitic chancre are investigated with serial dark ground examination, serological screening tests, as well as screening for other sexually transmitted diseases. Free treatment, together with detailed counseling and contact tracing, are offered to patients confirmed of syphilis or other sexually transmitted diseases. Routine screening with VDRL are carried out in pregnant women to prevent congenital syphilis.

The clinical services provided are also specifically targeted towards high risk groups, such as commercial sex workers. Health nursing visitors from the Anti-VD office pay regular site visits to these high risk clients for enforcing safe sex practice. Prostitutes are also recommended for regular body check and disease screening, and treatment if necessary, in an attempt to control the reservoir of syphilis and other sexually transmitted diseases in Hong Kong.

Recent study had showed that more than 80% of the patients with sexually transmitted diseases in Hong Kong were taken care by private doctors including private dermatologists, venereologists, gynecologists, and family physicians.<sup>9</sup> Updated lectures, especially targeted for private doctors, on syphilis and other sexually transmitted diseases are organized periodically by the Social Hygiene Service & the Hong Kong Society of Dermatology & Venereology. Hopefully this can alert all colleagues about the general increasing trend of syphilis, review with them the diagnosis and treatment of the disease, and remind them about the importance of contact tracing and treatment.

In the future, more collaborated effort between Hong Kong and its neighboring cities for better cross-border sexually transmitted disease control should be encouraged. Perhaps with the exchange of clinical information and statistic, and better synchronized local disease control and cross-border contact tracing, all parties involved should benefit from the cooperated action.

In Hong Kong, it is difficult to imagine that the rising trend of syphilis can be halted abruptly before the end of the century. As our fight against syphilis continues into the new millennium, the Social Hygiene Service will continue to keep a close surveillance on this old timer. And we shall always evaluate the ongoing situation so as to modify our intervention strategies and to allocate our resources accordingly. However, the ultimate control of the current problem should rely on the cooperated effort among all specialists who are working in the private and the public sectors within and without the territory.

### ***Learning points:***

***It is important for clinicians to be alert on the rising trend of early infectious syphilis in Hong Kong and to keep a high index of suspicion on syphilis in patients who are at risk.***

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