

SYPHILIS AND GONORRHOEA IN THE CZECH REPUBLIC

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Syphilis remains a public health problem in the Czech Republic and worldwide. The Czech Republic - until 1993 a part of Czechoslovakia - has a long tradition in public health activities, and STI surveillance is mainly focused on the infections traditionally called 'venereal diseases' - syphilis, gonorrhoea, chancroid, and lymphogranuloma venereum. Campaigns from the early 1950s, were successful in controlling syphilis and gonorrhoea; and chancroid and lymphogranuloma venereum infections are extremely rare. In late 1980s, a low incidence of newly reported syphilis cases was achieved (100-200 cases annually), while around 6500 cases of gonorrhoea were recorded annually during the same period. Health care and prevention of STI diseases in the Czech Republic are based on close cooperation between clinical departments and laboratory and epidemiological services of Environmental Health Offices. Annual statistics showing data on reported cases of 'venereal diseases', based on ICD-10 codes, are available from 1959. Separate statistical data on other STIs are not available, and aggregated numbers only for *Chlamydia trachomatis* infections have been presented annually since 2000 [5]. Following the political and social changes in the Czech community in 1989, a distinct increase of syphilis was recorded. Between 50% and 60% of notified cases were classified as late latent or of unknown duration. The continuing annual occurrence of congenital syphilis (7-18 cases per year) reported during the 1990s has also been a very serious phenomenon. Cases have been concentrated in large urban areas with a high level of commercial sex activity, and a high proportion of cases is also noted in refugees. While the annual incidence of gonorrhoea gradually decreased from 1994 to 2001 (from 28.5 to 8.9 per 100 000 population), the incidence of syphilis increased in this period from 3.6 to 9.6 per 100 000 population (the highest value was 13.4 in 2001) and in 2000, for the first time in many years, it exceeded the incidence of gonorrhoea.

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Key words : STI, syphilis, gonorrhoea, surveillance system, incidence, Czech Republic**Introduction**

Syphilis remains a serious public health problem in the Czech Republic, although incidence is lower than in Russia and other formerly socialist countries (particularly in former Soviet republics, where the re-emergence of syphilis is contributing to the HIV epidemics) [3,8]. The Czech Republic has a long tradition of public health care activities including a surveillance system for sexually transmitted infections (STIs). This system focuses on mainly the so-called 'venereal diseases' - syphilis, gonorrhoea, chancroid, and lymphogranuloma venereum. Campaigns starting in the early 1950s were successful in controlling syphilis and gonorrhoea infections (chancroid and lymphogranuloma venereum are extremely rare in the Czech Republic, and nearly all cases reported are imported from endemic areas). These aims were supported by legislative measures and the careful work of medical staff, both in clinical and epidemiological departments. A fairly low incidence of newly reported syphilis infections was achieved by the late 1980s, with 100-200 cases per year and around 6500 cases of gonorrhoea per year for the same period.

Methods**Diagnostic and surveillance system**

According to Czech legislation, the following venereal diseases are mandatorily reportable with full patient identification under the ICD-10 code: Syphilis (A50 - A 53), gonorrhoea (A 54), lymphogranuloma venereum (A 55), and chancroid - ulcus molle (A 57). No case may be registered without laboratory verification. Verification of clinical status is based on direct detection by culture or molecular biology methods (gonorrhoea and lymphogranuloma venereum or ulcus molle) or by microscopy (early syphilis), together with serological tests (syphilis). The concordance of screening serological techniques (VDRL or RPR, etc., and MHA-TP, TP-PA, EIA, etc.) with confirmatory level ones (FTA-ABS, western blot, etc.) is required. Health care and prevention of venereal diseases and other STIs, including chlamydial, mycoplasma, herpes simplex virus and human papillomavirus infections, are based on close cooperation between clinical departments and laboratories and epidemiological services of environmental health offices.

Syphilis may be clinically diagnosed with the support of antibody detection or serologically only - during the latent stages of illness,

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this is more common. Direct (dark field microscopy, direct immunofluorescence microscopy) and indirect screening methods and confirmatory tests (nontreponemal and treponemal serological tests) are in accord with those recommended by the World Health Organization (WHO) and European authorities [1,2]. The direct tests are mainly performed at the bedside while patients are admitted to the venerological departments of hospitals, or at outpatient clinics. The indirect serological testing is provided by blood bank, microbiological and serological laboratories (165 laboratories were cooperating in 2004), mostly on a screening level (nontreponemal tests - VDRL or RPR etc. + treponemal tests - MHA-TP, TP-PA or EIA/ELISA total etc). Confirmatory techniques (FTA-ABS IgG and IgM, western blot IgG and IgM, ELISA IgM, IgM SPHA) are performed in the national reference laboratory or in other specialised centres. Mandatory syphilis testing is carried out mainly for blood, tissue, sperm and organ donors, pregnant women (twice during pregnancy), all newborns, and patients suspected of venereal disease. The National Reference Laboratory for Diagnostics of Syphilis, set up in the 1970s, provides confirmatory testing in hospitalised and follow-up patients, and provides a consultation service for laboratories and clinical departments. Each year, in cooperation with the National Institute of Public Health in Prague, it prepares samples for external quality control, and also participates in the Syphilis Serology Proficiency Testing Program coordinated by the WHO Collaborating Center for Reference and Research in Syphilis Serology at the United States Centers for Disease Control.

Examination for gonorrhoea is based on clinical symptoms in suspect patients or in case-contact investigations. For laboratory confirmation of *Neisseria gonorrhoeae* infections, microbiological laboratories use culture, biochemical identification and drug susceptibility tests or PCR and hybridisation methods. Every reported case is laboratory confirmed.

All clinicians and laboratories have a statutory obligation to complete case reports of syphilis, gonorrhoea, ulcus molle or lymphogranuloma venereum and send it to Departments of Epidemiology of Environmental Health Offices. This system covers the entire Czech Republic.

Diagnosis, treatment and follow-up are done at dermatovenerological departments of hospitals or outpatient clinics. Diagnosis and case report are based on clinical status and laboratory confirmation. Their professional level is guaranteed by the Dermatovenerological Society of the Czech Medical Association of J E Purkyne (Ceska Lekarska Spolecnost J.E. Purkyne) and by WHO recommendations [1,2].

Mandatory monthly reports on 'venereal diseases' (syphilis, gonorrhoea, ulcus molle, and lymphogranuloma venereum) are compiled each month from outpatient departments, hospital departments and laboratories by the environmental health offices' epidemiology departments in the 14 regions of the Czech Republic. The reports include information on diagnosis, treatment, patient information, including sex, age, ethnicity, education level, sexual orientation, risky sexual behaviour, and pregnancy status. Accredited epidemiologists cooperate with clinicians and laboratories in checking reported data, namely confirmation of diagnosis, treatment and examination of contact persons. This information is transferred to the National Registry of Venereal Diseases. Statistically processed anonymous data are classified by individual diagnosis, age, sex, patient's residence, etc., and the outputs are made available on a quarterly basis for regions, and annually for the entire country. Annual reports are edited by the Czech Ministry of Health's Institute of Health Information and Statistics. Relevant issues cover data on syphilis, gonorrhoea, chancroid, and lymphogranuloma venereum going back to 1959.

An improved software system was implemented at the beginning of 2003, which uses newly prepared tools for reporting and processing data and is more flexible.

Other STIs are reported anonymously by clinicians annually, and basic aggregated data on chlamydial infections, stratified by sex, have been available since 2000.

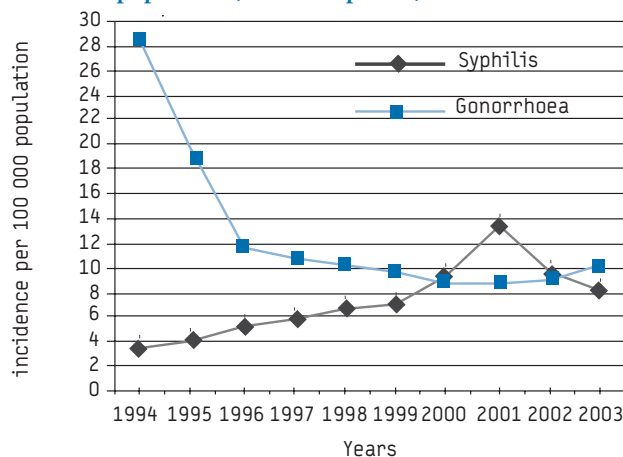
Results

Trends in syphilis and gonorrhoea in the Czech Republic from 1994 to 2003

Between 1994 and 2004, the absolute number of reported gonorrhoea cases decreased each year (2948 cases in 1994, to 880 cases in 2001). During the same period, the incidence of syphilis increased in from 3.6 to 9.6 per 100 000 population (the highest value was 13.4 in 2001). The incidence of syphilis exceeded that of gonorrhoea in 2000, for the first time in many years [FIGURE]. In 2002, there was a 3.5% increase in reported gonococcal infections, contrasting with a 30% decrease of syphilis cases compared with 2001 data [TABLE 1]. The number of notified cases in 2002 per 100 000 population was almost the same as in 2000. As in recent years, 50%-60% of syphilis cases were reported as late latent or of unknown duration [5]. No cases of chancroid or lymphogranuloma venereum were reported, owing to their rare incidence in the Czech population.

FIGURE 1

Trends in notified cases of syphilis and gonorrhoea per 100 000 population, Czech Republic, 1994 – 2003



* for 2003 only preliminary data are available

The congenital syphilis situation appeared to be slightly better in the period 2000-2002 than in preceding years [TABLE 1].

Risk groups for syphilis are still cohorts of men aged 20-24, 25-29, and 30-34 years, with a peak at 30 years of age. Age distribution of women patients is wider, beginning in the 15-19 year age group, with the peak at 25 years of age [5].

Regional distribution both of syphilis and gonorrhoea is related to large urban centres and regions with high level of prostitution: this is demonstrated by the higher incidence per 100 000 population [5]. The influence of institutions for refugees can also be seen in regional case reports [TABLE 2]. While the number of syphilis cases in foreigners with a short stay in the Czech Republic is low (for example, tourists), the situation is different for immigrants permitted long term stay and asylum seekers [TABLE 2]. The

proportion of cases in immigrants rose from 27% in 1997 to 59% in 2001. Foreign patients come mainly from Ukraine (42%), Moldavia (12.5%), the Russian Federation (8%), and Georgia (8%).

TABLE 1

Reported cases of syphilis and gonorrhoea (including foreigners), Czech Republic, 1994 – 2003

Year	Reported cases (incidence per 100 000 population)				
	Congenital syphilis**	Early syphilis	Late syphilis	Syphilis NS***	Gonorrhoea
1994	13 (12.2)	250 (2.4)	55 (0.5)	51 (0.5)	2948 (28.5)
1995	12 (11.4)	294 (2.8)	61 (0.6)	66 (0.6)	2036 (19.7)
1996	10 (10.0)	391 (3.8)	80 (0.8)	70 (0.7)	1194 (11.6)
1997	16 (17.6)	366 (3.6)	107 (1.0)	115 (1.1)	1098 (10.7)
1998	18 (19.9)	451 (4.4)	85 (0.8)	133 (1.3)	1055 (10.3)
1999	17 (19.0)	404 (3.9)	127 (1.2)	183 (1.8)	995 (9.7)
2000	11 (12.1)	472 (4.6)	17 (1.2)	357 (3.5)	888 (8.6)
2001	13 (14.3)	405 (3.9)	183 (1.8)	775 (7.5)	880 (8.6)
2002	7 (7.5)	304 (3.0)	154 (1.5)	511 (5.0)	911 (8.9)
2003*	11 (12.1)	838 (8.2)			1030 (10.1)

* Only preliminary data is available

** The incidence of congenital syphilis per 100 000 population is 0.1 – 0.2

*** Syphilis NS: illness of unknown duration.

TABLE 2

Reported cases of syphilis and gonorrhoea in foreigners, Czech Republic, 1994-2002

Year	Resident foreigners		Short-termed stay foreigners	
	Syphilis	Gonorrhoea	Syphilis	Gonorrhoea
1994	NA	NA	16	89
1995	NA	NA	27	78
1996	NA	NA	50	57
1997	70	62	91	49
1998	82	57	121	56
1999	130	61	151	37
2000	291	57	126	23
2001	731	81	87	10
2002	376	62	52	7

NA – not available

In every region, the majority of gonococcal infections are in men, and they represent a reservoir of infection, as reported in previous years [5]. The proportion of cases in foreigners does not exceed 10% annually.

The majority of syphilis and gonorrhoea cases are reported in groups of unmarried patients. This seems to show that this population group is engaging in risky behaviour with multiple partners [5].

Conclusion

A distinct increase in syphilis cases has been recorded since the political changes of 1989. The steady increase of congenital syphilis cases reported during 1990s was also alarming. The average incidence of all stages of syphilis (not counting cases in foreigners) in the period 1994-2002 varied from 4 to 5.6 per 100 000 population. The situation seems to be similar to that in other EU countries [4,6,8], but in comparison with the Czech situation in the late 1980s, the situation undoubtedly worsened during 1990s.

The mandatory serological testing for syphilis of asylum seekers must play a positive role in recognising infections, and gives this group better access to treatment and care than would otherwise be available.

The current situation could be assessed as relatively favourable, and an improvement on that of the 1990s, probably due to better

cooperation between clinical, laboratory and epidemiological departments. Congenital syphilis is often diagnosed in pregnancies that have not been monitored, usually because of bad compliance by the pregnant woman.

The newly implemented system for reporting and processing data should bring us better flexibility and variability of outputs.

The spectrum of reported STIs will be extended, and these data will probably be collected anonymously.

Future areas of priority include *Neisseria gonorrhoeae* drug resistance (most of patients are treated with tetracycline, azithromycin or by ciprofloxacin and ofloxacin) and applying systematic measures to prevent congenital syphilis.

References

- Centres for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines 2002. *MMWR*. 2002; 51 (no. RR-6): 26-30
- Goh BT., van Voorst Vader PC. European guideline for the management of syphilis. *Int J STD AIDS*. 2001 Oct;12 Suppl 3:14-26
- Hook III EW, Peeling RW. Syphilis control - a continuing challenge. *N Engl J Med*. 2004 Jul 8;351(2):122-4
- Hughes G., Paine T., Thomas D. Surveillance of sexually transmitted infections in England and Wales. *Euro Surveill*. 2001;6(5): 71-81
- Institute of Health Information and Statistics of the Czech Republic. Venereal diseases 2002. *ÚZIS* 2003. <http://www.uzis.cz>
- Marcus U., Hamouda O., Kiehl W. Reported incidence of gonorrhoea and syphilis in East and West Germany 1990-2000 - effects of reunification and behaviour change. *Eurosurveillance Weekly* 2001;5(43). <http://www.eurosurveillance.org/ew/2001/011025.asp>
- Nicoll A. Epidemics of syphilis in the Russian Federation and other states of the former USSR: implications for HIV and AIDS. *Eurosurveillance Weekly* 1997; 1(13). <http://www.eurosurveillance.org/ew/1997/970724.asp>
- World Health Organization, Regional Office for Europe, CISID Home-STD and HIV/AIDS. <http://www.cisid.WHO.dk/>