

PIOTR KSIAŻEK<sup>1</sup>, JOLANTA HERDA<sup>1</sup>, MAGDALENA RASZEWSKA<sup>2</sup>,  
MAGDALENA KAWAŁEK<sup>2</sup>, SYLWIA MOJSYM<sup>2</sup>

## Bakteryjne choroby przenoszone drogą płciową – zagrożenie XXI wieku

## Bacterial sexually transmitted diseases – the threat of the 21st century

### Streszczenie

Od wieków bakteryjne choroby przenoszone drogą płciową stanowią istotny problem zdrowotny społeczeństw całego świata. Światowa Organizacja Zdrowia podaje, że co roku notuje się ok 340 mln nowych zachorowań. Chociaż w wielu przypadkach dolegliwości jakie powodują są niewielkie, to jednak wywołują przewlekłe i zakaźne infekcje, które mogą być przyczyną poważnych powikłań. Choroby przenoszone drogą płciową powszechnie uznawane są jako wstydlive, co skłania pacjentów do podejmowania prób samoleczenia, zanim zaczerpną fachowej porady lekarskiej.

W pracy scharakteryzowano najczęściej występujące infekcje bakteryjne przenoszone drogą płciową: czynniki ryzyka, objawy, powikłania. Ze szczególną uwagą przeanalizowano dostępne doniesienia dotyczące aktualnej sytuacji epidemiologicznej w Polsce. Jest ona niepokojąca. Ze względu na brak rzetelnych i transparentnych danych przypuszcza się, że wiele zakażeń jest niedostatecznie diagnozowanych lub nierejestrowanych. Wskazano obszary profilaktyki zdrowotnej, które powinny być wzmocnione. Badania wykazują niską świadomość najbardziej narażonych grup społecznych, dlatego najistotniejszym działaniem z obszaru promocji zdrowia, wzmacniającym elementy pozytywne tj. zdrowie i bezpieczeństwo powinno być rozpowszechnienie wiedzy na temat STD.

### Abstract

The bacterial STDs have been always a part of human life. Societies from all over the world tackle with this relevant health problem. Three hundred and forty million of new STD cases are revealed every year according to WHO. In most cases symptoms are barely noticeable, however they cause chronic and infectious diseases that may lead to serious, long-lasting consequences. There are some patients who choose self-treatment before they visit specialists. The cause of that is the perception of STDs as embarrassing diseases.

The aim of this article is to introduce the most frequent bacterial STDs, their risk factors, symptoms and complications. We analyzed with a particular attention available data and reports about current epidemiological situation in Poland. Results are unfavorable. It is presumed that most cases of sexually transmitted diseases are not diagnosed or registered properly. This is the reason why the particular attention should be drawn to certain fields of health promotion. Research has revealed low level of medical knowledge in most exposed societies. It seems that most important way to limit STD is to spread knowledge widely among patients and their doctors.

**Słowa kluczowe:** choroby przenoszone drogą płciową, kiła, rzeżączka.

**Key words:** sexually transmitted diseases, syphilis, gonorrhea.

<sup>1</sup> Department of Public Health, II Faculty of Medicine of the English Division, Medical University of Lublin

<sup>2</sup> Students Scientific Society at the Department of Public Health, Medical University of Lublin

## INTRODUCTION

According to WHO annually around 340 m people are falling ill with sexually transmitted diseases worldwide. Bacterial infections of sexual organs constitute the substantial, both epidemiological and clinical problem. In 2008 Prof. Majewski from Centre of Diagnostics and Treatment of Sexually Transmitted Diseases of Warsaw Medical University reported no substantial aggravation of the epidemiological situation in the statistical dimension. He is emphasizing that a trend of falling ill with syphilis has continued comparing to previous years. He draws attention to the fact that the number of serological examinations, performed with a view to detecting asymptomatic cases of syphilis, has fallen [1]. The awareness of the society about epidemiology and threats resulting from infection and the prevention is low. The main source of knowledge on STD for young people is the Internet, which results in the fact that this knowledge appears fragmentary and incomplete [2]. Information campaigns are limited to the topics of HIV and AIDS; nobody remembers about chlamydiosis, syphilis or gonorrhea and the fact is that bacterial sexually transmitted diseases still exist.

## ETIOLOGY AND TERMINOLOGY

Sexually transmitted diseases (STD) were once called venereal diseases. This name derives from the Roman goddess Venus, called also Venere – goddess of the spring, the flora and vegetables, who, since the II century BC was identified with the Greek goddess of love – Aphrodite. Among classical venereal diseases there were: syphilis, gonorrhea, soft chancroid, lymphogranuloma inguinale, of granuloma inguinale. Problems in the classification, for which sexual contacts are one of forms of spreading, made the introduction of currently approved names at the turn of the nineties. Apart from the above mentioned diseases the term STDs (sexually transmitted diseases) includes illnesses caused by the following bacteria (*Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Mycoplasma hominis* and *genitalium*, *Ureaplasma urealyticum*, *Treponema pallidum*, *Shigella*, *Campylobacter*, *Salmonella* – which mainly appear in homosexuals), viruses (HIV, CMV, HBV, HCV, HDV, HSV 1 and 2, HPV, MCV), protozoa (*Trichomonas vaginalis*, *Entamoeba histolytica*, *Giardia*, *Isospora belli*, *Cryptosporidium* – mainly in homosexuals), fungi (*Candida albicans*), parasites of the skin (*Sarcoptes scabiei*, *Phthirus pubis*), worms (*Enterobius vermicularis*) (pinworm). In the following article, the ones of bacterial etiology will only be discussed.

## HISTORICAL OUTLINE

Sexually transmitted diseases have been affecting the population from times immemorial. One among the first known diseases in Europe causing embarrassing problems was syphilis – otherwise called French illness, freni, Polish illness or also courtly disease. Its incidence in the Old Continent is coinciding with the time of Christopher Columbus expeditions

towards the end of the fifteenth century. Speculations exist that the discoverers of America brought bacterium to Europe. Phylogenetic studies led by Kristin Harper from Emory University in Atlanta are showing larger resemblance between the pale treponema met in Europe and the bacterium found in an American continent. Moreover, the presence of the *T. pallidum* wasn't confirmed in human remains in Europe from before times of Christopher Columbus [3]. In Poland information of syphilis dates back to 1495, when it was „brought” by the Wawel clerk's wife from the pilgrimage to Rome.

In the XVIII century spreading of syphilis infection as well as other venereal diseases was favoured by the lack of hygiene and the universally appearing phenomenon of prostitution. A substantial increase in the prevalence of the disease took place [4], however mortality, due to resistance of the population, was definitely lower than in previous years [5]. After infection with syphilis, infertility was a considerable problem. Among others King Augustus Zygmunt suffered from it [6] and therefore he died heirless. Stanisław Cyński, contemporary biographer of the Augustus Zygmunt, doesn't deny that last of Jagiellonians suffered from syphilis. Syphilis was incurable all the way until the miraculous discovery of penicillin in 1940.

## EPIDEMIOLOGY

WHO reports that annually worldwide around 340 million of new cases of sexually transmitted diseases morbidity appear (according to estimates from 1999). In the developing countries they are one of five main causes of seeking doctor's consultation. Health situation of Poles (the epidemiological state in individual provinces is presented in Fig. 1) is presented in the report published by the State Department of Hygiene and Public Health (from 2008). It points to worrying morbidity of congenital syphilis in relation to the incidence of syphilis generally. This definitely constitutes the premises for drawing conclusion about the lowered surveillance. Also low incidence ratio of gonorrhea related to other countries of EU can be a confirmation of that [7]. The low rate of STD incidence can inform both about the high degree of the sexual hygiene of the given society and about the scarce detectability of sexually transmitted diseases (Fig. 2). This state can be caused by the lack of the knowledge on illness causes, effects, but first of all on the illness manifestations. Few people realize that some STD can run without symptoms, not causing unpleasant complaints [8]. It creates the situation that may result in the putting the vigilance of public health administration to sleep and lowering of the effectiveness of activities aimed at raising the awareness of the society about the sources and ways of infection and the effects of untreated sexually transmitted diseases. It is predicted that in the nearest future the number of dragged infections will rise, which is connected with the increase in the mobility of the Polish people and the bad epidemiological situation of neighboring countries [8]. Therefore making oneself aware of the fact that these diseases haven't passed away to a proverbial „junk room”, and still constitute the substantial clinical and epidemiological problem, is quite important.

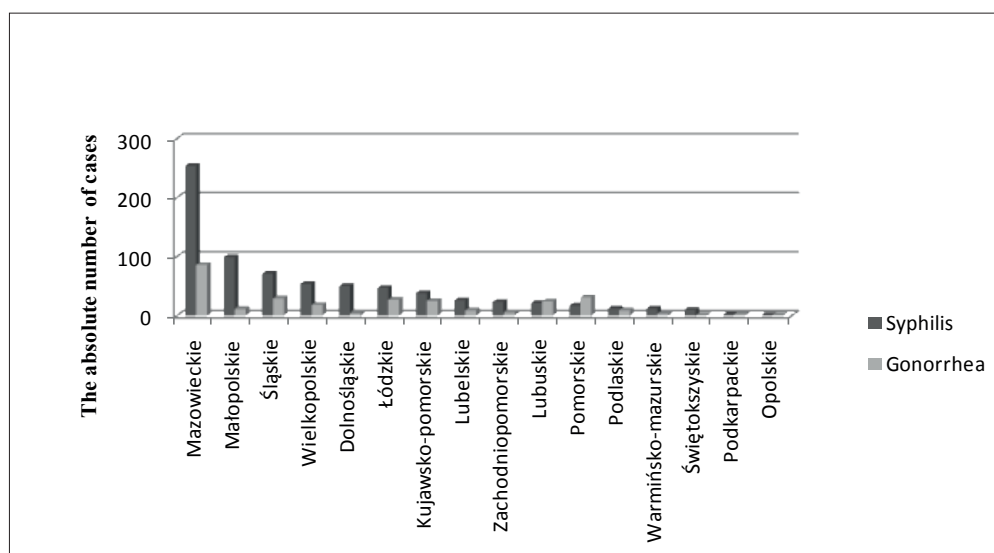


FIGURE 1. Falling ill from syphilis and gonorrhea according to voivodeship regions in 2008 (basing on CSIOZ data).

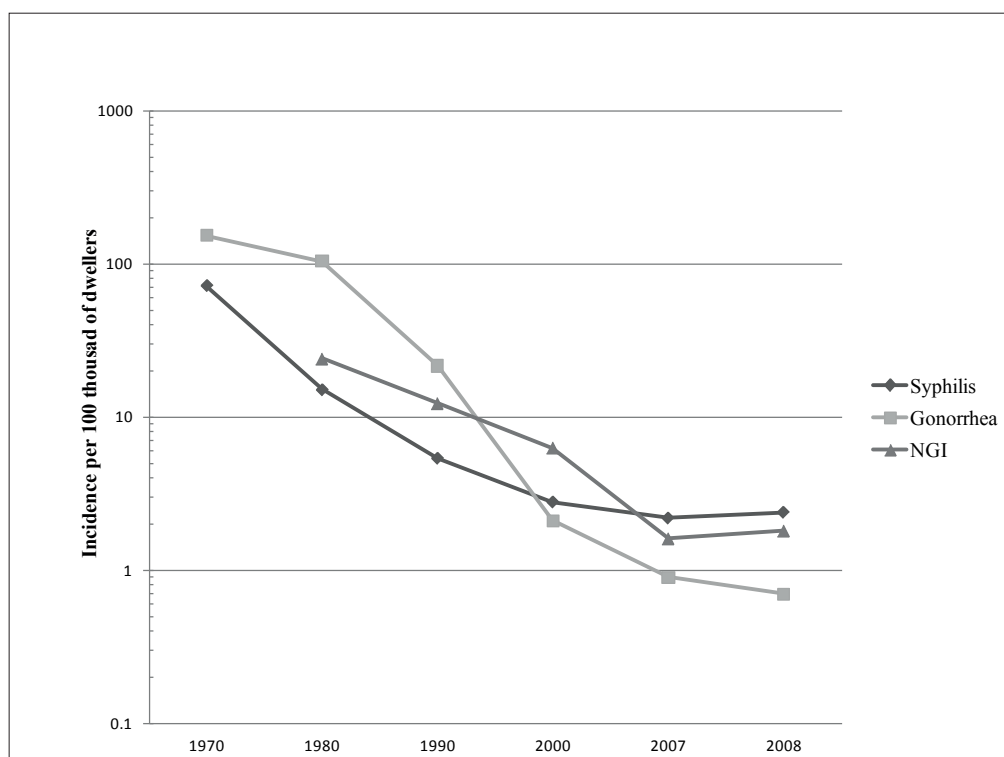


FIGURE 2. Syphilis and gonorrhea incidence rates according to voivodeship regions in 2008( basing on CSIOZ data).

## FACTORS PROMOTING INFECTION

Getting known of risk factors constitutes the base both for preventive action and for early detecting and the effective treatment. A few major groups of factors are well known. Out of the prevailing risk factors, age enjoys considerable impact, as the highest incidence of sexually transmitted diseases is being observed at young persons aged 15-24 years. The female sex is a substantial, crucial factor of infection. The conducted studies in 2007 in the United States prove that probability of infection with such pathogens like *Chlamydia trachomatis*, *Neisseria gonorrhoeae* is three fold higher than

at men – simultaneously this illness is more often recorded at men, because women often remain asymptomatic [9,10].

Peculiarly predisposed to *Treponema pallidum* infection are uncircumcised men. People of the black race are more often ill than Caucasians [9]. Also attention is given to a life-style – the increased risk of infection is characteristic of single persons, living in big urbanized areas of the humbler social and economic status [10]. Also the awareness-changing effects are important among recognized risk factors. Among them drugs and alcohol are dominating, which favourestablishing easy acquaintances. In STD epidemiology behavior and sexual habits are an important component. The fact that

at persons having intercourse with one partner the risk of infection is smaller than in case of the ones who are holding numerous and diverse sexual forms, is essential (orogenital, oroanal, anal).

## COMMON INFECTIONS AND DISEASES

A *Chlamydia trachomatis* is the most frequent STD triggering bacterium, which in 35-70% is responsible for non-gonococcal urethritis. WHO estimates that the annual costs associated with the treatment amounts to 10 billion dollars [11]. In the clinical picture, at men, a discharge from the urethra and dysuric manifestations are dominating – one should however remember that up to 30% patients experience this infection without symptoms. At women infecting most often is manifested in the form of the cervicitis. In 50% cases infection at women is symptomatically poor or it runs without any complaints. If manifestations are accompanying it, women most often report a feeling of discomfort and intermenstrual bleedings [11,12]. One should remember that chlamydiosis can lead to dangerous complications in the form of pelvic inflammatory diseases, even to the oviduct infertility [13]. *Mycoplasma genitalium* can cause similar complaints [14]. Gonorrhoea (clap) is an illness caused by infection with Gram-negative *Neisseria diplococcus gonorrhoeae*. Mucous membranes of the urinary tract, the cervix, the rectum, the throat and conjunctivae, are the primary site of infection. At men it usually causes urethritis. A stinging sensation that the purulent discharge from the urinary tract is accompanying is its first manifestation. Infection with gonorrhea at women mainly concerns the cervix, next – the anus, the urinary tract and the throat [10]. In 50% cases *N.gonorrhoeae* infection proceeds without symptoms. If manifestations appear, they most often accept the form of increased vaginal discharge or vaginal discharge, as well as pain in the underbelly [15].

Syphilis is illness presenting very rich clinical symptomatology. For the characteristic feature of syphilis one may recognize spontaneous disappearance of pathological changes [16]. Unfortunately, for a few years an increase of falling ill with the congenital syphilis is observed which causes more or less serious impairments of the fetus and can trigger miscarriage, not to say the death of the fetus [17]. The soft chancre, the granuloma inguinale and the lymphogranuloma inguinale very rarely appear in Europe – and they basically concern persons returning from endemic areas [18].

## BEFORE VISITING A DOCTOR – SELF TREATMENT

When manifestations appear, pain is the most frequent of them, forcing the sick person to a visit at the specialist. In such situations the sick person usually also admits having other, less nagging symptoms which last for certain time [8]. Complaints that don't influence the quality of life considerably are being ignored. Sometimes however sick persons are taking the attempt of the independent treatment. It is assumed that because of manifestations typical of STD around 20% sick individuals report to doctors with self-treatment histories. Taking antibiotics prescribed because of other

illness is one of the solutions. Amongst patients with the suspicion of gonorrhea at the STD clinic in Dade County in Florida as many as 12.3% admitted using antibiotics before they reported to the hospital [19]. Other popular ways, like using of medicines available without the prescription (OTC s), helps to soothe pain or to eliminate burning sensation.

Using these methods is not only blurring the image of causes of the complaint, but also it leads to delaying the normal process of curing. Group 2/3 of patients admitted that the duration of manifestations from the moment of the appearance for reporting to the specialist had taken them out 7 days or less. At the ones who applied the self-treatment methods, this period was longer by 2 days [20]. Extending the time is also characteristic of the population of men. Shame and fear of the visit in the clinic of sexually transmitted diseases, including anxiety of publicizing of the state of health of the person infected, are one of causes of the discussed state [21].

## PROPHYLAXIS

On account of the lack of honest and transparent data describing the epidemiological situation in Poland in STD (it is believed that many infections aren't registered, some get insufficiently diagnosed), intensification of preventive-promotional operations is recommended. Conducted examinations on the group of 150 pupils in 2009 showed that among them 3/4 thought that condom can't protect an individual against infection of the sexual character, while it is exactly one of the most important preventive actions [3]. The most significant action of health promotion area, which strengthens positive elements i.e. the health and the safety, should be spreading the knowledge about STD, above all amongst groups mostly exposed to infections (pupils of the secondary school, students). The awareness of patients themselves is very important, because it often happens that people report to the doctor too late and then trivial illness may really become dangerous because of complications e.g. infertility. The role of doctors is explaining patients the facts of life that untreated illness can be the source of infecting for their partners.

## CONCLUSIONS

Bacterial sexually transmitted diseases from time immemorial have constituted the serious health and social problem of populations of the entire world. The incomplete knowledge about risk factors, ways of the prevention, most often appearing manifestations or their lack in case of existing infection, lead to low detectability of this illness. Taken attempts of the independent treatment, delay correct diagnosis, and hence extend the contagiousness of a given person; moreover the chances on effective healing are minimized. It is often connected with distant effects of untreated infections, such as infertility or inborn syphilis at children. It is essential to promote the hygiene of the sex life and the idea of prophylaxis actions in the area of the prevention and the promotion of health.

Young, sexually active people should be a target group, both homo- as well as heterosexual, because in their case the risk of infection is greatest. Unfortunately, in the present

form applying STD campaigns focuses mainly on illness, of which viruses are an etiological factor (HPV, HIV), omitting bacterial infections equally frequent and hazardous to health. It leads to putting the vigilance to sleep and underestimating manifestations, which seemingly trivial can lead to serious diseases radically influencing the quality of life.

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## Informacje o Autorach

Prof. dr hab. PIOTR KSIAŻEK – kierownik; dr n. med. JOLANTA HERDA – asystent, Katedra i Zakład Zdrowia Publicznego, Uniwersytet Medyczny w Lublinie; MAGDALENA RASZEWSKA, MAGDALENA KAWALEK, SYLWIA MOJSYM – Studentkie Koło Naukowe przy Katedrze i Zakładzie Zdrowia Publicznego, Uniwersytet Medyczny w Lublinie.

## Adres do korespondencji

Katedra i Zakład Zdrowia Publicznego  
Uniwersytet Medyczny w Lublinie  
ul. Chodźki 1, 20-093 Lublin  
e-mail: [zdrowie.publiczne@umlub.pl](mailto:zdrowie.publiczne@umlub.pl)